Sustainable Trade and Poverty Reduction

New approaches to integrated policy making at the national level

Preface

Today's public policies, especially in the development realm, rarely fail to involve some form of stakeholder participation and reference to sustainable development. Examples are as wide-ranging as Indonesia's Poverty Reduction Strategy Papers, Lebanon-European Union Association Agreement and Uganda's draft Trade Policy. This phenomenon reflects the demand, at national and international levels, for democratising policymaking and addressing the general goal of sustainability.

The challenges, however, are to improve the effectiveness of stakeholder participation and comprehensively internalise the implications of a given policy in future policymaking processes. Participation should not be limited to satisfy mere procedural requirements and contribute little to policy quality. The appearance of referring to economic, social, and environmental issues also does not mean that their interdependencies are known and analysed or that the results of the analysis will help policymaking.

In response to these challenges, UNEP began an Integrated Assessment and Planning (IAP) initiative in 2003 with the involvement of nine countries. This initiative, which builds on a series began in 1997, goes beyond the usual focus on policy assessment, which has tended to run independently of the process of policymaking. Instead, IAP now encourages the reform of the policymaking process by institutionalising stakeholder participation, other good governance principles, and comprehensive analysis. Although the initiative piloted with only one or two policymaking processes in each participating country, it is hoped that broad-based IAP will be widely adopted.

UNEP started this IAP initiative with the recognition that this was an ambitious attempt. It is one thing to mobilise stakeholders, assess policies, and provide input to policymakers from the sidelines. It is quite another to improve existing policymaking processes, which are closely tied to social structures, cultures and established political, legal, and administrative systems, all of which have their own built-in rigidities. With this IAP initiative, UNEP hopes to at least help participating countries identify shortcomings in existing policymaking processes and begin the search for improvement.

The results, synthesised in this report, are comprehensive, but as far as success is concerned, there have been both progress and some remaining stumbling blocks. The participating countries have identified shortcomings in existing processes, procedural and analytical. But in most cases, the IAP processes, to

differing degrees, stayed external to policymaking. In most cases, policymakers did express support for IAP recommendations, and some strong personal commitments were shown. Nevertheless, there has been no institutionalised improvement to existing policymaking.

With this account, UNEP would like to invite a critical review of the results from the IAP initiative. We look forward to constructive comments and, in particular, innovative suggestions on how to help interested countries improve their policymaking processes effectively. This is a long march. We hope you will join us in taking the first step.

Acronyms and abbreviations

EU	European Union
FTA	Free Trade Agreement
IAP	Integrated assessment and planning
M&E	Monitoring and evaluation
NGO	Non-governmental organization
PRSP	Poverty Reduction Strategy Paper (Indonesia)
R&D	Research and development
SEA	Strategic Environmental Assessment (Czech Republic)
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

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United Nations Environment Programme

The United Nations Environment Programme (UNEP) is the overall coordinating environmental organization of the United Nations system. Its mission is to provide leadership and encourage partnerships in caring for the environment, by inspiring, informing, and enabling nations and people to improve their quality of life without compromising that of future generations. In accordance with its mandate, UNEP works to observe, monitor, and assess the state of the global environment; improve the scientific understanding of how environmental change occurs; and in turn, determine how such change can be managed by action-oriented national policies and international agreements. UNEP's capacity building work thus centres on helping countries strengthen environmental management in diverse areas, which include freshwater and land resource management; the conservation and sustainable use of biodiversity, marine and coastal ecosystem management; and cleaner industrial production and eco-efficiency, among many others.

UNEP, headquartered in Nairobi, Kenya, marked its first 30 years of service in 2002. During this time, in partnership with a global array of collaborating organizations, UNEP achieved major advances in the development of international environmental policy and law, environmental monitoring and assessment, and our understanding of the science of global change. This work also supports the successful development and implementation of the world's major environmental conventions. In parallel, UNEP administers several multilateral environmental agreements (MEAs), including the Vienna Convention's Montreal Protocol on Substances that Deplete the Ozone Layer, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (SBC), the Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention, PIC), the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, and the Stockholm Convention on Persistent Organic Pollutants (POPs).

Division of Technology, Industry and Economics

The mission of the Division of Technology, Industry and Economics (DTIE) is to encourage decision makers in government, local authorities and industry to develop and adopt policies, strategies, and practices that are cleaner and safer, make efficient use of natural resources, ensure environmentally sound management of chemicals, and reduce pollution and risks for humans and the environment. In addition, it seeks to enable implementation of conventions and international agreements and encourage the internalization of

environmental costs. UNEP DTIE's strategy in carrying out these objectives is to influence decision-making through partnerships with other international organizations, governmental authorities, business and industry, and NGOs; facilitate knowledge management through networks; support implementation of conventions; and work closely with UNEP regional offices. The Division, with its Director and Division Office in Paris, consists of one centre and five branches located in Paris, Geneva and Osaka.

Economics and Trade Branch

The Economics and Trade Branch (ETB) is one of the five branches of DTIE. Its mission is to enhance the capacities of developing countries and transition economies to integrate environmental considerations into development planning and macroeconomic policies, including trade policies. ETB helps countries develop and use integrated assessment and incentive tools for achieving poverty reduction and sustainable development. The Branch further works to improve our understanding of environmental, social, and economic effects of trade liberalization and the effects of environmental policies on trade, and works to strengthen coherence between Multilateral Environmental Agreements and the World Trade Organization. ETB also helps enhance the role of the financial sector in moving towards sustainability. Through its finance initiatives, ETB also helps enhance the role of the financial sector in moving towards sustainability.

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Table of contents

Part one: Synthesis

Part two: Country executive summaries

List of tables

1. Introduction

This part of the report synthesizes the results of the latest round of UNEP-sponsored projects on Integrated Assessment and Planning (IAP) in nine countries: Brazil, Chile, Colombia, the Czech Republic, Indonesia, Kenya, Lebanon, Russia, and Uganda. The report's target audiences include public policymakers, donor representatives, policy officers in NGOs, policy analysts in the business sector, and scholars interested in the general concept of IAP and the policies assessed in this round of projects. The report aims to inform readers of the results and motivate them to suggest improvements to the current approach. Another aim is to encourage readers to support the implementation of project recommendations and application of IAP to more and wider policies, including those in trade and poverty reduction, and in more countries.

This part has 5 sections. After this introduction, Section 2 describes this round of projects including the evolution of work since 1997. Section 3 covers the various dimensions of the projects, including the issues addressed, analytical approaches used, and findings generated. Section 4 highlights major recommendations. Section 5 determines lessons learned. The Executive Summaries from the country reports are presented in the second part of this publication.

2. The IAP Projects

2.1 The genesis of the IAP projects

In early 2003, with funding support from the Norwegian Government, UNEP initiated the current round of IAP projects.[1] According to the original plan, these projects were intended for developing countries and transition economies who were looking to apply an integrated approach to public policies ("policies" to include plans, programmes and projects) and their formulation processes. The objective was to "assist (these) countries to use integrated assessment and planning as a tool for balancing environmental, social and economic objectives and relating them to poverty reduction and trade enhancement".[2] To achieve this objective, the projects would be based on existing assessment experiences in the participating countries. Building the capacity of institutions in developing countries and transition economies would be a common theme running throughout the projects.

UNEP initiated this round of projects to assist countries to do things differently. Countries were encouraged to not only assess policies from a sustainable development perspective, but also improve their existing policymaking processes through public participation and integration of sustainability considerations. This new, ambitious attempt was driven by repeated international calls for upstream integrated policymaking and UNEP to drive such a mandate (see Section 2.4).

Through these projects, UNEP hopes to encourage innovation and experimentation in policymaking. Significant difficulties are anticipated along this path, as policymaking remains influenced by social structures, culture, and political, legal and administrative system, all factors that defy simple treatment. By taking this first step, however, UNEP hopes to eventually see approaches to policy that are adaptable to different needs and circumstances.

2.2 The IAP project process

The first preparatory meeting took place in Chavannes de Bogis, Switzerland, in February 2003 to lay the foundation for the IAP projects. An international working group was formed, consisting of members from NGOs, academic institutions, consultancies and the public sector as well as intergovernmental organizations such as the

[1] At the country level, the project title is "Capacity Building for Integrated Assessment and Planning for Sustainable Development".
[2] UNEP (2003:2)

European Commission (EC), UNDP, the World Bank and the World Trade Organization. The meeting saw extensive consultations on the possible objectives, processes and analytical framework of what was then termed "strategic integrated planning". It also provided an opportunity to exchange related international experiences and methodologies such as the EC's sustainability assessment initiative. With the support of this group of individuals, the meeting led to the writing of a background document for implementing IAP.[3] It was agreed that a specific integrated assessment framework should not be carved in stone beforehand, but developed after the completion of the IAP projects so as to construct a foundation of real world experiences.

The second preparatory meeting was convened in Geneva in June 2003 to introduce the IAP initiative to potentially interested countries identified by the international working group and UNEP's own research. The meeting brought together representatives from 14 developing countries and transition economies. Ministries of environment and planning representatives were invited to attend and share their experiences in policy assessment and planning. This reflected the general recognition of the importance of integrating environmental and social concerns in economic, trade and development policies. At the meeting, the background document was discussed extensively with the international working group, to allow interested countries to develop project proposals for this IAP initiative.

Subsequent to this second preparatory meeting, a large number of countries sent in their requests, out of which 9 were selected to participate, based on the criteria[4] of:

- Governmental commitment to develop and implement sustainable development policies.
- A distinct and transparent planning process with priority on poverty reduction.
- Sufficient opportunities to undertake integrated assessment in the area of poverty reduction planning.
- Flexibility in the planning process to accommodate the UNEP project, which was planned to begin during the fourth quarter of 2003 and be completed by mid 2005.
- Basic capacity to implement the project.

The participating governments own the projects and project implementation at the national level was broadly participatory. The governments of the 9 collaborating countries identified their respective national institutions to implement the project. In each country, a national workshop typically ensued to launch the project. A national steering committee representing the key social and economic sectors was also established in each country to guide implementation. Technical and consultative workshops were also organized to review the project's progress and outcomes before the final results were consolidated. A final national workshop was held in conclusion to communicate the final results. These final events often generated more information on recommendations, follow-up activities and possibilities to replicate and expand the IAP approach in-country.

Throughout the IAP project process, UNEP with support from members of the international working group provided important technical assistance to the countries. The assistance included: preparing the

[3] UNEP (2003)
[4] Based on ibid (2003:7)

initial background paper, drafting a project guidance document, participating in national workshops to initiate the projects, conducting training sessions, facilitating exchanges of country experiences, reviewing project results, visiting participating countries to provide technical advice, and facilitating the communication of project outcomes. All these efforts have contributed to enhancing capacity building to the IAP projects.

2.3 The evolution of the IAP

This round of IAP projects has lifted UNEP's work on integrated assessment to a new level from nearly a decade ago. In 1997, UNEP initiated the first round of assessment projects in 6 countries focusing on the impact of structural adjustment programmes, especially the trade policy elements, on an environmentally significant sector in each country (shrimp farming in Bangladesh, mining in Chile, automobile industry in India, forestry in the Philippines, water in Romania, and fishery in Uganda). In 1999, UNEP launched the second round of assessment projects in another 6 countries (fishery in Argentina and Senegal, cotton in China, Banana in Ecuador, cocoa and rubber in Nigeria, and forestry in Tanzania). The third round of projects commenced in 2002 with 6 countries focusing on the implications of trade liberalization in one same sector - rice production (China, Colombia, Cote d'Ivoire, Indonesia, Nigeria, Senegal and Vietnam). From the first to the latest fourth round, the assessment has evolved from the study of environmental effects of mainly trade-related policies to an integrated consideration of a range of public policies, their development, and their environmental, social, and economic effects. Hence, the term Integrated Assessment and Planning.[5]

Apart from a new level of integration, UNEP has also been promoting a shift from *ex post* assessments to *ex ante* or concurrent assessments. This shift is driven by the observation that recommendations from *ex post* assessments are often nothing more than flanking measures and do not address the flaws of the policies from the beginning. An additional drawback was that *ex post* recommendations often come too late in the policymaking process to be useful. Moving assessments upstream provides policymakers with options, increases the potential for synergies and minimizes trade-offs among different societal objectives. With this shift, the IAP projects now focused on improving policy formulation processes in the participating countries.

2.4 The IAP framework and approach

In early 2004, a draft non-prescriptional guiding document was prepared and shared with the participating countries.[6] The document "described key tasks and issues that will need to be addressed, and it suggested an approach that starts out from a self-assessment of an existing planning process which can be used to identify strengths and weaknesses, and then sets priorities on what a country team may wish to deal with as part of the UNEP pilot project".

In this document, a "framework for integrated assessment of planning processes in support of sustainability" was outlined. It identified key elements that included initiation, analysis, design of strategy or strategic planning, design of actions or operational planning, implementation, and monitoring. Each of these elements or tasks were

[5] UNEP (2004:7)
[6] UNEP (2004)

to be checked against: (a) environmental, social, and economic impacts and issues; (b) sustainability goals, principles, standards and indicators; and (c) participation, transparency, accountability and ownership. The importances of both substantive and procedural integration were emphasized and the general principles of capacity building and good governance highlighted.

In another document shared with the participating countries in April 2005, UNEP defined IAP as "an interdisciplinary process of combining, interpreting, and communicating knowledge from various scientific disciplines in such a way that the system-wide cause-effect chain associated with a public project, programme, or policy can be evaluated for the benefit of decision-making". In the same document, key stages and steps in the IAP approach were suggested to the participating countries[8] for their consideration (see box).

Box: Key steps for designing and implementing IAP projects

Stage 1: Defining the target for assessment and designing the IAP project

1. Select a planning process with scope for improvement.
2. Review the structure of the planning process.
3. Determine key strengths and weaknesses of the planning process.
4. Determine priority analyses and consultations to be provided.

Stage 2: Conducting the assessment

1. Select tools to carry out planned analyses and consultations with stakeholders.
2. Apply the selected tools and approaches.

Stage 3: Integrate the results from assessment into planning

1. Integrate the results into decision-making.
2. Evaluate lessons learned when implementing IAP.

Questions are often raised on the meaning of integration. In the context of IAP, three levels of integration were suggested.[7] Firstly, substantive integration refers to the identification of synergies and conflicts among the environmental, social, and environmental aspects of sustainable development. Secondly, analytical integration refers to the use of assessment methods and tools from different disciplines. Thirdly, procedural integration refers to aspects such as stakeholder participation, inter-ministerial coordination, access to information, transparency in policymaking processes, and accountability of policymakers.

2.5 The expected contributions of IAP

All these rounds of assessment projects, covering more than 20 countries, are expected to contribute

[7] Based on Jan Joost Kessler (2005)
[8] UNEP (2005b)

to the Plan of Implementation, of the World Summit on Sustainable Development (WSSD), and UNEP mandates. The WSSD Plan of Implementation, agreed in Johannesburg in September 2002, called for a "holistic and inter-sector approach" to implement sustainable development in general and deliver the Millennium Development Goals in particular. This Plan gave priority to poverty reduction and trade and emphasized the use of "environmental impact assessment procedures" as a means of encouraging "relevant authorities at all levels to take sustainable development considerations into account in decision-making". In addition, the Plan called upon countries to formulate and elaborate national strategies for sustainable development, "which, where applicable, could be formulated as poverty reduction strategies that integrate economic, social and environmental aspects of sustainable development".[9] Several UNEP mandates also call for support to governments to promote integrated policymaking.[10] The rounds of UNEP's assessment projects directly support these international agendas by encouraging and enabling governments and national institutions to apply an integrated approach to poverty reduction, environmental management and sustainable economic and trade development.

[9] Ibid (2003:3)
[10] UNEP GC, GC21/14 and C 33/10.

3. Country Studies

3.1 Targets for IAP

The 9 collaborating countries chose their public policies or the policies' formulation processes, or both, as subjects for IAP (see Table 1 for a list of these targets as well as the analytical methods used in IAP, major findings and recommendations, project outcomes, and follow-up activities). The differences reflected the unique sustainable development challenges in these countries or regions within the countries.

In the Brazilian Amazon region, for example, one major problem is the continuous and intense deforestation driven by land speculation and illegal land occupation. The deforested land is first converted into cattle ranges and then into agribusiness plantations growing soybeans for export. Soybean production and trade stimulate further speculative and illegal activities. This dynamism is only fuelled by the prospect of the laying of federal highway BR-163, which cuts across conservation areas and indigenous peoples' land in the Brazilian Amazon. The challenge is to ensure that the highway construction, and associated soybean production, are done in a way that avoids social conflicts, improves the livelihoods of the indigenous people, and protects forests and biodiversity in the affected areas.

Or take Russia's Tomsk Oblast (region) in Siberia as another example. This part of Russia is not only endowed with oil gas, and forest resources, but also blessed with established educational and research institutions. In terms of economic and trade growth, however, Tomsk Oblast is lagging behind other Russian regions due to its geographical isolation. Tomsk Oblast has areas that are particularly rich in natural resources but poor in economic and trade development. The challenge is to identify different developmental options and pursue a developmental path that minimizes environmental degradation, supports sustainable use of natural resources, creates high value added from local resources, and ensures equitable distribution of development benefits among its residents.

In Kenya, economic growth over the last decade has not been able to match population growth. The level of poverty, especially in rural areas, has remained high. Among the major constraints on economic growth, trade expansion and poverty reduction are the inadequate supply and high cost of energy, and the lack of access for the rural poor to modern forms of power. The country depends heavily on hydropower, biomass, and import of fossil fuels, all of which have environmental implications. The challenge is to develop a new energy policy in such a way that overcomes constraints on economic growth, trade expansion and poverty reduction are

overcome with minimal negative environmental effects, or even give positive environmental effects.

Trade is a crosscutting feature of the various policies selected for IAP, but three countries focused on trade policies as the main targets for IAP. In Colombia, a major concern is the implications of trade liberalization, required by the Free Trade Agreement (FTA) with the USA, for the country's rural areas, home to most of the poor and biodiversity. In Lebanon, the Association Agreement with the EU has provided increased market access for the country's agricultural products, but the challenge is to meet EU's environmental standards and ensure that the rural poor will share in the benefits from increased trade. Uganda's National Trade Policy is still evolving and under consolidation from a disarray of sectoral trade policies, thus offering an opportunity for applying IAP at this early stage of policy formulation.

Apart from targeting specific policies for IAP, most collaborating countries also assessed the associated policy formulation processes. Chile, for example, selected the Ministry of Agriculture's Environmental Agenda (MAEA) as the target for IAP. The assessment not only focused on the content of the Agenda, but also the process by which the Agenda was formulated, and issues of inter-ministerial coordination and stakeholder participation. Similarly in Kenya, the assessment covered both the Energy Policy and its formulation process. In Indonesia, a large part of the assessment of the national Poverty Reduction Strategy Paper (PRSP) zoomed in on process-related issues. The Czech Republic focused on previous policymaking processes and suggestions to integrate sustainability issues into existing planning and assessment procedures.

3.2 Analytical approaches

All participating countries employed stakeholder participation in one form or another in the IAP projects (see Table 1). They relied on this approach to identify key issues, establish indicators, gather data and opinions, validate analytical results, and reach consensus on recommendations. Participation proved to be essential as much of the data needed for IAP were not readily available. Moreover, there were no readily available analytical frameworks and tools in IAP for some countries. Under these circumstances, stakeholder participation could fill some of the important gaps. In Chile, for example, most of the projections of timber, pork meat and wheat production were provided by the private sector. Furthermore, stakeholder participation also facilitated future implementation of recommendations from integrated assessment.

Most countries used scenario analysis in these projects (see Table 1). They used it to assess the implications of different policy options. In implementing this approach, some countries included baseline information on select economic, social and environmental indicators for comparison with the projected results of the different policy options. Scenario analysis in the Chilean project, for example, included baseline information from the forestry, pork meat and wheat sectors in 2003-2004. The Kenyan study included baseline information for 2004 on employment, income, energy-related respiratory diseases, greenhouse gas and lead emissions, and the consumption of fuel, charcoal, and firewood. Policy options range from no policy intervention to varying degrees of intervention. The Chilean and Lebanese studies had options of "with and without policy interventions". The studies in Colombia, Kenya and Uganda went further by examining varying extents of the same policy intervention.

Brazil used the scenario analysis uniquely. It constructed four scenarios that were combinations of two independent variables: international market situation, and local governance (i.e. weak/strong market and weak/strong governance combinations). Two other variables, road paving and the different options to implement the Sustainable Development Plan for BR-163 highway, were considered within the two main study variables. This type of analysis has the advantage of highlighting the fundamental forces affecting the policy options in question.

Most of the participating countries also used a combination of qualitative and quantitative analyses in the IAP projects. Qualitative analysis, based on stakeholder consultations, surveys and expert opinions was generally applied to social and environmental implications of the assessed policies, and the associated policymaking processes. This reflected the lack of quantitative data, especially for ill-defined indicators such as poverty and environmental pressure. In some cases, problem was the lack of the capacity to collect or generate new data. In Brazil, for example, all the assessments were made in qualitative terms, including the economic aspects. Data to support projections of soybean production and other relevant indicators had been collected, but quantitative analysis was constrained by time, personnel and resources. These constraints prevented the development of an integrated analytical model to quantitatively examine the scenarios.

The dominance of qualitative analysis might also reflect the reasonable perspective that in some cases, it would be sufficient to influence policies and their formulation processes. For example, in the Chilean study, no measurements and baseline data were found to describe rural poverty, sustainable use of native forest, underground water quality, soil conservation, fertilizer and pesticide use, local environmental impacts, and biodiversity protection. But the local partners felt the qualitative analysis was adequate and was even more effective than quantitative analysis in engaging a diverse group of stakeholders to discuss sensitive issues.

Quantitative analysis was typically applied to the economic implications of the assessed policies. This was the case in Chile, Colombia, Lebanon and Uganda, where most of the economic (and particularly production-related) indicators were presented quantitatively. The data were either readily available from existing sources or contributed by the private sector. Kenya was a unique case in that it applied quantitative analysis to the environmental and health implications of energy development, reflecting the wealth of existing analysis on emissions. But Kenya's quantitative analysis was limited to the projections of energy demand and employment. Assessing economy-wide implications would have required much more time, resources and capacity which were not available.

3.3 Findings from IAP

3.3.1 Participatory policymaking

Most of the policymaking processes assessed in the IAP projects already included stakeholder participation to a varying extent. In Brazil, for example, an Inter-Ministerial Working Group was created and public consultations held to formulate and implement the Sustainable Development Plan for BR-163. Indonesia's PRSP process was also participatory. In Russia, the stakeholder participation in Tomsk Oblast regional strategic planning was described as "unprecedented", though it still missed the vulnerable groups. One exception was Chile

where the MAEA had been developed without the involvement of stakeholders beyond the Ministry.

This prevalence of stakeholder participation may be explained by the increased democratization of societies and a requirement from the donor community. All of the countries participating in the IAP projects are considered democracies with elected governments. The growing involvement of the public in policymaking processes, therefore, is no surprise. Stakeholder participation has now become a universal principle and can be found in the documents of almost any donor-funded programmes and projects. In principle, this movement towards participatory policymaking is commendable, but there are practical issues that remain to be addressed:

1. There is the issue of conflicting interests among different stakeholders. As in the Brazilian case where illegal occupants grab indigenous communities' lands, the act of bringing these stakeholders together by itself does not solve the conflicts. In Kenya, the civil society lobbied for prominence of biomass and renewable energy in the Energy Policy, but this demand was not completely achieved due to divergent views among various interest groups.

2. There is the issue of the true influence that stakeholders have on policy outcomes. In both Brazil and Indonesia, for example, there were low expectations that stakeholders would really be heard. In Lebanon, there was no follow-up after initial consultations. In Kenya, some stakeholders claimed that their views were not factored into the final Energy Policy document.
3. There is the issue of separate participatory processes for the same policy. The Czech Republic, for example, legally required a Strategic Environmental Assessment (SEA), and socio-economic assessment when formulating National Development Plans. The two processes, however, were not integrated, making it difficult for policymakers to know the interdependencies among the economic, social, and environmental effects.

4. There is the issue of substance in the participatory process. In the Brazilian case, the official BR-163 planning process would have been more meaningful if specific targets, indicators, financial requirements, and timeframes had been considered.

5. There is the issue of consistency in stakeholder participation. In the Kenyan case, representation of certain groups in policymaking had not been consistent, leading to loss of institutional memory. As a result, issues that had been dealt with earlier had to be reintroduced, slowing the policymaking process. Adding to this problem was the lack of a systematic approach and effective organization of the participatory process.

6. Finally, there is the issue of the scope and cost of participation. The Czech Republic identified the challenge and the cost of accommodating a large number of stakeholders for the wide range of issues.

3.3.2 Integration of sustainability issues

Some of the policies assessed here had already considered economic, social and environmental issues to varying degrees, but often only on a general level. The Sustainable Development Plan for BR-163 in Brazil, for example, discussed the issues

of governance, equity and sustainable resource use and production. In Chile, competitiveness and trade were the driving force internal to the MAEA, though social considerations were inadequately covered. In Lebanon, the Association Agreement with the EU adequately covered the various dimensions of sustainable development. In Russia, the Tomsk Oblast regional development strategy and programme included goals such as rational use of natural capital, effective governance, and good conditions for life in addition to economic efficiency and entrepreneurships development. In Uganda, the Fisheries Policy did not address only the issues of marketing and trade, but also sustainable management and women's rights of access to fishery. In these countries, the stakeholders considered the policies to have largely captured economic, social, and environmental dimensions. Now the assessment would be focused more on the interlinkages to see if they could be further enhanced or fully implemented.

This integration, however, was not found in other policies or policy formulation processes assessed. Uganda's draft Trade Policy, for example, did not study the potential social and environmental implications. Kenya had a similar problem. In addition, its Energy Policy generally had few links to other sectoral policies with the exception of forestry and environmental policies. In Indonesia, an economic approach initially dominated the PRSP's formulation. After criticism from stakeholders, it approach was later balanced with a rights-based approach under which environmental and resource management issues were accommodated. Trade policies in Colombia provided general statements on environmental and social objectives, but it was usually left to the policy, the Agricultural Internal Agenda, to raise the issue of integration. In these countries, the IAP projects were valuable in making the policies more integrated.

3.3.3 Trade, poverty and environmental interactions

The policies selected for IAP varied from country to country, and so did the interactions and relationships among the economic, social, and environmental dimensions of sustainable development. A few general observations could still be made based on common elements among the countries:

1. Trade liberalization can provide opportunities or pose threats to poverty reduction and environmental conservation. In Lebanon, the Association Agreement with the EU opened the door to freer exports of olive oil, up to 1000 tonnes per year duty free. If Lebanon had been able to fully utilize this opportunity through improved regulations and production standards, its annual olive oil export revenue would have been US$3,500,000 instead of 2004's US$147,000 in, a 2,380 per cent difference. This increase in revenue had real prospects for poverty reduction. In Colombia, however, the concern was that the FTA could drive many small-scale farmers out of business, aggravating their level of poverty.

2. Strong environmental policies and planning can strengthen competitiveness but care must be taken to address poverty and equity concerns. In Chile, the assessment found that contrary to widespread perception, stringent environmental policies could actually enhance the country's competitiveness through the export of timber and pork meat. Small producers, however, might not be able to afford the new standards and could be worse off if no support were given to them. In Indonesia, the assessment found that

coral reef restoration and sustainable fishing practices enhanced the trade of ornamental fish and increased inflow of tourists. Through the self-organization by the local communities, the benefits were shared equitably among the villagers, contributing to reduced conflicts and increased social cohesion.

3. Good governance is essential for regulating the interactions among economic, social, and environmental factors. In Brazil, it was assessed that the sustainable effects of the scenarios would depend on the regulatory environment. In the absence of good governance, the private sector would continue to be linked with deforestation, exploitation, territorial occupation, land concentration, dominance of traditional oligarchies, and corruption, whether BR-163 highway was built or not. However, good policies and social governance would translate the economic and trade benefits of the highway into sustained poverty reduction and equitable development with controlled environmental impact. In Lebanon, good governance in terms of setting certification standards and supporting the establishment of test laboratories would be critical for the olive oil sector to realize the full potential of duty-free exports to the EU market. Public policies providing training and other support to unskilled labour and women would also be critical to extend the benefits of free trade to the poorest segments of society. Indonesia had a somewhat different experience. There, a village-level integrated approach succeeded without the involvement of local government. But this did not mean that state support was not important. If the poverty reduction budget of the district and provincial governments had been designed in an integrated fashion, the positive effects experienced at the village level would have been scaled up significantly across many parts of Indonesia.

3.3.4 Policy implementation

In several countries, policies assessed may have contained broadly sketched levels of integration, but their implementation tends to be constrained by the lack of operational specifics, and institutional and budgetary arrangements. In Brazil, for example, the Sustainable Development Plan for BR-163 did not outline targets, activities, steps and timelines, nor did it provide any reference to required financial resources and ways of coordination among different sectors. Similar issues also existed with the Chilean MAEA, whose implementation would require "clear commitments, resources, responsibilities and coordination between different public organizations". The Kenyan study also identified inadequacies in inter-ministerial coordination, legal and regulatory frameworks, human and financial capacity, and the matching of policy formulation and budget allocation as the major barriers to policy implementation.

Another issue is implementation capacity. In the Indonesian case study, the local government was found to have little technical expertise to support integrated strategies. This was compensated by the capacity of NGOs and Bali's traditional ways of self-regulation. In other countries, however, the capacity issue was not confined to the public sector. In Lebanon, inadequate governmental capacity to regulate the testing and certification of olive oil has not been, and perhaps should not have been, replaced by interventions from NGOs or community groups.

A few countries touched on the issue of monitoring

and evaluation (M&E) for the policies assessed or new policies recommended. The Chile team emphasized the importance of having an environmental information system, which could facilitate the monitoring of the effects of implementing the MAEA. The Kenyan study pointed out that in the country's energy planning process, M&E was either not carried out or carried out unsystematically, although the Ministry of Planning and National Development was spearheading an effort to address these issues. The project in Russia made a suggestion that a "strategic radar" be established to monitor, evaluate and adapt the Tomsk Oblast Development Strategy.

4. Summary Recommendations from the Projects

Generally speaking, four sets of recommendations emerged from this round of projects, based on the country reports:

1. Several countries returned recommendations to improve governance, institutions, laws and enforcement. Brazil emphasized the need for strong local governance in land-use management, and institutional coordination in implementing the Sustainable Development Plan. In Chile, the emphasis was also on institutional coordination for MAEA implementation. A major suggestion from the Czech study was to integrate the process of two official teams that were conducting socio-economic assessment and SEA. Recommendations from Lebanon focused mainly on the role of the public sector in supporting the upgrading of the olive oil sector. Kenya stressed the importance of legal backing for the Energy Policy and public participation.

2. Some countries also underlined the role of the private sector in their recommendations. Chile emphasized the support to public-private partnership and encouraged the adoption of voluntary initiatives by the private sector. Lebanon underscored the importance of partnership with the private sector and NGOs in improving olive oil production to the standards required by the EU. Uganda also proposed to engage the private sector to improve fisheries management. Kenya suggested that the private sector take the lead on energy conservation efforts.

3. The use of economic valuation, incentives and instruments for environmental planning was found in the recommendations of several countries. Brazil, Chile and Uganda all called for applying economic incentives and tools to encourage sustainable resource-use activities. Colombia suggested incentives to encourage the production of value-added products by small-scale farmers. Kenya targeted income subsidies to the poor and small and medium enterprises that were negatively affected by the rise in energy prices. In addition, it proposed to use differential taxation to encourage the shift away from fuelwood to kerosene and cooking gas.

4. Efforts in the fields of information, education, technology and best practices were also called for in a number of countries. The Brazilian report proposed increased support for R&D, and generation and diffusion of information on technologies and best practices, which could facilitate sustainable production in the BR-163 area of influence. Colombia also proposed R&D for non-food and agricultural uses of corn to stabilize domestic corn production. Information dissemination, training and waste management

technologies would be particularly important for Lebanon if it were to reap the full benefits from increased market access.

Apart from these broad categories of recommendations, countries also made suggestions on the issues they addressed. These suggestions included, for example, the establishment of a genetic resources market in Colombia; the use of clustering methods to facilitate analysis from a sustainability perspective in the Czech Republic; the need for an institution to implement policies regarding wood-based energy in Kenya; the need for a national olive oil office in Lebanon; a sustainable development council to be attached to the Tomsk Oblast Administration in Russia; and the setting of guidelines for environmental impact assessment in Uganda's aquaculture sector.

Some of these recommendations have already had certain influences on policies or their formulation processes. In Chile, for example, the government was considering applying IAP to the entire agricultural sector, with the private sector willing to fund some of the proposed environmental measures. In the Czech Republic, the government had already incorporated some of the project recommendations into the terms of reference for the SEA of the next National Development Plan. In Lebanon, NGOs and government agencies are already working together to set up an official olive oil tasting panel.

In other countries where the effects of the recommendations are less clear at this time, follow-up activities are being planned to further develop the results of the assessment, communicate these results, sharpen the focus on steps to be taken, and engage key policymakers. In Brazil, the need for specific indicators and improved analytical methodologies was identified as an area for additional work. In Colombia, the subsequent involvement of the Ministry of Environment in the formulation of the Agricultural Internal Agenda was encouraged for biodiversity reasons. In Indonesia, for the recommendations to have real effect on future PRSPs, integrated policy interventions would have to be scaled up from the village level. In Kenya, more work was called for the energy and other sectors to evaluate the usefulness of the IAP as a planning tool. A unique case is Russia. The study frankly admitted that the recommendations had little effects on the Tomsk Oblast Development Strategy. Given the rigidities embedded in that region's planning process, it would be difficult to introduce the recommendations into the developmental strategy at a later stage, say during the monitoring, evaluation and adaptation stages.

5. Lessons Learned

The following conclusions are not an evaluation of the projects carried out in the countries, but summarize lessons drawn by the countries for this round of projects. They are presented here to improve the design and implementation of similar projects in the future:

1. These IAP projects have either introduced or strengthened stakeholder participation in policymaking. In Chile, for example, the levels of participation and inter-ministerial collaboration were considered unprecedented. In Russia, the IAP project resolved a major shortcoming of the strategic planning process - the lack of participation by the most vulnerable groups in isolated areas.

2. In general, the IAP has been a useful tool to identify win-win opportunities among environmental, social and economic objectives, and minimizing the trade-offs. In Lebanon, this concept helped generate stakeholder interest in the potential gains in both trade and environmental terms, while pointing out the need for targeted support to share the benefits with the poor. In Uganda, the concept enabled the stakeholders to link sustainable fisheries management with improved livelihoods and healthcare, while cautioning against excessive ecosystem manipulation in the aquaculture sector. In Kenya, the IAP concept led to recognition of the need for additional provisions in the Traffic Act, Kenya Roads Board Act and the draft Transport Policy.

3. There is a need to further develop and communicate the IAP concept. The Kenyan team identified the need to provide a clear explanation of the concept, the relationship between IAP and conventional approaches, and the applicability of this approach in developing countries. In other countries, such as the Czech Republic, there is a need to further clarify the relationships between IAP and the other assessments, as policymakers there considered the IAP to be only a subsection of SEA.

4. There is a need to enhance the effectiveness of IAP-related stakeholder participation. The Chile team pointed out that its participatory process was time and resource consuming beyond the original intention. When commenting on both the trade negotiation and IAP project processes, Colombia emphasized the need to measure the efficiency and effectiveness of participation by local communities.

5. There is a need to frontload specific capacity building areas for IAP project implementation. Kenya, for example, identified the need to increase individual and institutional capacity to

adapt IAP to national circumstances and analyse policy issues in an integrated manner. Before replicating the IAP approach in other policy areas, it would be necessary to have intensive capacity building. In addition, Kenya identified the need to provide adequate funding and time to an IAP project team. In Brazil, the project team felt that the analysis could have been more rigorous had a larger project budget allowed more data collection and quantitative analysis.

6. There is a need to further strengthen the analytical part of the IAP projects. There are a couple of issues here. One is the selection of the target for an IAP exercise. Several countries, including Brazil, Indonesia, Kenya and Uganda, had to switch to another policy part of the way through IAP. This might have been due to inadequate initial analysis and understanding, the stage of policy development, and the possibility of synchronizing the IAP with other select policymaking processes. To an extent, this might also have reflected the deficiency of the criteria used to choose these targets. Another problem was data constraint, which affected the quality of analysis. Better management of the IAP project budgets could have allowed more data collection and processing. Involving the private sector could also have helped fill some of the data gaps, as in the case of Chile and Lebanon.

7. Factors other than analytical rigour could have affected the IAP projects. One was the issue of timing, or when to carry out an IAP. It is usually preferable to have an *ex ante* IAP so as to influence policymaking from the beginning. But the timing of national policy development does not usually synchronize with that of an IAP project. Several IAP projects started with the intention of being *ex ante*, but ended up *ex post*. The project in Indonesia, for example, came in a little late in the PRSP process whereas in Uganda, the trade policy was too preliminary for any rigorous assessment. Another issue was the involvement of key policymakers or their advisors in the IAP project process as part of institutional links, which was difficult to arrange. The Brazilian study observed that had the members of the Inter-ministerial Working Group on BR-163 been systematically involved in the IAP project, they would have found it "easy to formulate their own recommendations".

8. Finally, in relation to the issue of timing and involvement of key policymakers or their advisors, the idea of applying an integrated approach to policy formulation apart from assessment was also broached. This idea is embedded in the "planning" part of the IAP concept and postulates that if an integrated approach has been internalized in the national systems of policymaking, there will be little worry about the timing and involvement of key actors. This "planning" part of IAP is elaborated in the draft guidance document, but was not followed closely in the projects. Perhaps policy formulation, compared to policy assessment, is much more driven by deep-rooted local institutional factors and difficult to influence. Hence, with the exception of Chile, where the IAP project process was somewhat interwoven with development of MAEA, the other IAP projects remained external to the policy formulation processes with varying degrees of interface. Policy recommendations were mostly add-on. If integrated policy formulation is to remain in IAP, a significant effort will be needed to understand

public policymaking in different countries. This will be a long-term process and progress will only be incremental. But if we plant seeds now by raising awareness and building institutional capacity, undoubtedly an achievement of this IAP initiative, we will already be one step closer to our goal of integrated policymaking for sustainable development.

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Table: Comparison of key elements in the country studies

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Brazil	Paving of federal highway BR-163 and the Sustainable Development Plan for BR-163-affected areas	Stakeholder mapping; scenario analysis	- Governance is critical with or without road paving; - Worst situation is where strong economic growth is coupled with weak governance; - Sustainable development in affected areas needs rigorous economic growth within a strong regulatory framework.	- Strengthen local-level governance focusing on land regulation and management; - Manage influx of migrants and growth of urban centres; - Provide incentives to encourage & facilitate sustainable productive activities; - Support R&D, generation/ diffusion of information, including technologies and best practices; - Improve the organizational aspects of the BR-163 Plan: prioritisation of investments, timing, budget, and coordination. - IAP project team should now work more closely with the BR-163 planners for a feasible timeline and as a methodological support team.	- Government willing to incorporate some of the IAP methods, analytical tools and findings in the final version of the Sustainable Development Plan for the BR-163 that will be presented at the end of April, 2006. However, lack of quantifiable indicators makes the analysis and monitoring process difficult; - Interest from other Amazonic countries in the project and possibilities of replication.	-Refine indicators and improve quantitative analysis; - Improve the methodologies based on lessons learned and Brazilian context; - Propose to replicate this assessment for the Sustainable Amazon Plan; - IAP project team should now work more closely with the BR-163 planners for a feasible timeline and as a methodological support team.

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Chile	Ministry of Agriculture's Environmental Agenda (MAEA): focusing on forestry, pork meat and wheat.	Structured interviews; document review; scenario analysis; projections by the private sector.	- MAEA has win-win potential for environment and trade but lacks specificities in current form; - Effects on jobs & rural poverty would vary, depending on the sectors, involvement of small/ medium farmers, and the extent of shift from labour to capital; - Lack of economic rationality for MAEA; - Lack of social considerations including traditional knowledge, role of private sector, possible pressure on small & medium farmers to comply with new environmental requirements, etc.; - Lack of data and information.	- Support related conservation strategies, laws, educational programmes, and public-private partnership; - Use economic incentives to encourage sustainable practices such as soil conservation in all farming activities; - Provide financial and technical support to small farmers who may be affected by more stringent environmental requirements; - Encourage voluntary initiatives such as Clean Production Agreement and certification schemes; - Establish an information system measuring environmental changes, esp. regarding underground water; - Improve land-use planning; - Strengthen inter-institutional coordination.	- Ministry of Agriculture's Office of Agricultural Policies and Studies willing to recommend overall agricultural policy go through an integrated assessment; - Some private producers willing to contribute funds to support the implementation of certain proposed environmental measures; - Provide a space for the Ministry of Agriculture and CONAMA (the environmental authority) to work closely with other stakeholders; - The Ministry of Agriculture recognized the benefits of the stakeholder consultations. It was the first time that the agricultural policy was discussed outside of the Ministry.	- Propose similar assessment for other relevant sectors; - Further capacity building activities to engage key decision makers and private sectors; - Assess financial implications of implementing proposed measures; - Assess impacts on small farmers in more detail.

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Columbia	Free Trade Agreement	Stakeholders' analysis; Quick-Agro – Ecological Assessment; mental maps; semi-structured dialogues; expert consulta-tions; root causes trees; scenario analysis; price elasticity analysis.	- Small farmers' corn productivity is low; - Very few traditional farms would be converted to technified lands; - Pork and poultry sectors would benefit from reduced cost of feed; - Animal feed substitutes for corn could develop and expand; - Cultural consideration means that the indigenous landraces seeds would be affected only to a limited extent for now; - Other effects on biodiversity depend on alternative farming practices or uses of land (e.g. GMO corns, other crops, cattle ranching, illegal hunting and trade of wildlife); - Differences between large and small producers need to be taken into consideration when formulating agricultural and trade policies.	- Design a domestic support policy with special emphasis on the small farmers; - Develop incentives to keep traditional production that is environmentally friendly; - Prepare a substitution plan for small scale farmers and protect their rights as farmers; - Increase in productivity and efficiency by investing in locally adapted seeds, farm seed development, and selected seed production; - Support R&D in biotechnology (the same as modern technology), with special emphasis on small producers; - Support in situ farm conservation, conversion to sustainable production, and certification; - Include environmental considerations in agricultural and land use planning; - Strength control over GMOs; - Encourage value-added products, ecotourism, & agritourism by small scale farmers; - Promote differented com markets (organic, fair trade, non-GMO);	- Recommendations presented to the Agricultural Internal Agenda; - Recognition by the Ministry of Agriculture that small farmers could be negatively affected by trade liberalization because of their difficulties to adapt to the new situation; - Ministry of Environment is evaluating how to include part of the IAP methodology in the assessment legislation and applying the methodology to 11 new crops.	- Socialise the project findings and propose a permanent inter-institutional mechanism to follow up on the Internal Agenda; - Include biodiversity in Internal Agenda planning process; - Ministry of Environment to participate in Internal Agenda planning process.

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
				- Support R&D for non-food and agricultural uses of corn; - Improve marketing channels for small farmer's agricultural production; - Educate the public on the value of agricultural biodiversity.		

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Czech Republic	National development planning process (National Development Plan 2004-2006, National Development Plan 2007-2013) .	Stakeholder consultations; surveys.	- Two separate assessment processes: legally required Strategic Environmental Assessment (SEA) and non-legally required socio-economic assessment, with different logic/ analytical methods, unable to resolve conflicts; – Need for procedural integration; - Late public involvement, no clear schedule, no budget, little time and unclear responsibility for incorporating inputs; - Difficulty in identifying stakeholders and selecting/mandating their representatives; - Limited experience in defining sustainability issues and integrating sustainability in planning and decision-making; - Need to develop and apply assessment methods to treat sustainability issues in an integrated way.	- Integrate the two assessment processes and provide joint inputs to the plan; - Use the Pressure-State-Response model to analyse economic, social, and environmental issues; - Set up sustainability reference framework and use a clustering method to group policy measures and reduce their number to facilitate analysis of relevance, impacts, and interactions; - Improve the planning and effectiveness of public participation.	- Recommendations on procedures for sustainability assessment partially accepted by Ministry of Regional Development and incorporated into official ToR for SEA of the new National Development Plan (NDP 2007-2013); - First nationwide expert forum held on integrating sustainability issues into development planning and decision-making; - Discussion initiated on suitable approaches to sustainability assessment among different groups of specialists, including the Czech Council for Sustainable Development; - Position clarified on integration of sustainability issues within existing planning and assessment processes, though IA continues to be identified with SEA.	- Consolidate and test assessment methods, address the gaps between various methods/ tools and the call for simplification; - Prepare a position paper involving the Ministry of Environment on legal and methodological frameworks for IA, to be submitted to the Czech Council for Sustainable Development; - Continued discussions between the two assessment teams focusing on socio-economic objectives in relation to the environment; - Inter-ministerial consultations on cross-cutting issues and trade-offs; - Apply IA to regional development plans.

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Indonesia	Poverty reduction strategy paper (PRSP) 2005-2015.	Stakeholder consultations; scenario analysis.	- The PRSP process was participatory and transparent, but inadequate or non-substantive participation from most relevant ministries and inadequate outreach to the poor and general public; - The overall process unclear, e.g. regarding the effects of stakeholders input on PRSP and roles of stakeholders in the process; - Economic strategy dominated poverty reduction efforts; - Environment is an add-on, not integrated, with inadequate coverage of key environmental issues except access to land from social perspectives;	- Environmental rehabilitation and protection be integrated in any poverty reduction strategies; - PRSP should ensure the rights and access by the poor to social and economic capital; - National PRSP should learn from site-level models of economic, social, and environmental integration such as the example of the Les Village in Bali, which has experienced a benign cycle of reef restoration, improved fishery management, increase ornament fish trade and tourism, and improved living standards; - Local people need to be engaged collectively and with support for capacity building including marketing.	- Improved specification on PRSP implementation; - Increased recognition by the central government of the need for site-level interventions.	- Based on the Les Village case study, scale up the integrated strategy to the district and regency level; - Propose increased government support especially regarding local technical expertise and investment in R&D.

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- No consideration of trade-offs among different priorities and no critical evaluation of existing poverty reduction programmes on which PRSP was to be based; - Lack of institutional arrangement for PRSP implementation.			

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Kenya	Energy planning process; energy policies for the transport and household energy sectors.	Policy mapping; scenario analysis; expert opinions; stakeholder consultation, field survey, demand analysis, emission-factor analysis, health impact analysis	- Overemphasis of energy policy on electricity and petroleum with little attention to biomass energy, which accounts for 70% of Kenya's energy use; - Energy projections largely rely on historical growth with no consideration of conservation, efficiency targets, and technological development; -Implementation and M&E not carried out systematically; - Lack of adequate stakeholders' consultation and some stakeholders claimed that their views were not incorporated in the policy; - Inconsistent stakeholder participation slowing the policy process; - Inadequate integration of social and environmental issues;	- Targeted income subsidies to the poor and SMEs negatively affected by energy price rise, such as incentives for agro-forestry and village woodlots and reduced tax for the poor and SMEs; - Differentiated taxation to encourage shift from fuelwood to reduce pressure on forest; - Enactment of draft Energy bill 2004 into law; - Legal backing for planning process & public participation; - Improve budgetary process; - Increase capacity for policy analysis; - Need for donor coordination and support; - Create local ownership & commitment to policy and budgetary processes; - Political commitment to champion improved and integrated planning; - Demonstrate the benefits of IAP over conventional planning; - Strengthen the voice of stakeholders; - Increase transparency & room for debate; - Increase consultation in policy formulation; - Increase participation through parliamentary committees;	- Recommendations being considered by the Ministry of Planning & National Development; - Need for integration of policies on different sectors and levels being taken seriously by the government; - KIPPRA being considered for a consultancy on demand for petroleum products to justify extension and expansion of oil pipeline.	- More work in energy and other sectors to further gauge the usefulness of IAP as a planning tool; - Dissemination of clear/non-controversial project results; - Implementation of "easy" recommendations, focused research on why the cost of energy remains high.

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- Not clear how the poor, marginalized, and vulnerable groups were represented; - Lack of integration with other sectors; - No provision for an institution to ensure implementation of wood energy policies; - No implementation strategies and targets for biomass energy in the energy policy; -In transport sector, energy policy and its improvement would lead to smaller energy demand (as compared with business as usual) with reduced pollution, increased jobs in the sector, but energy price would rise having social implications;	- Identify/develop innovative and cost effective methods of assessment; - Research on appropriate energy technologies; - Awareness campaigns on energy conservation and efficiency.		

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- In household sector, the energy policy would lead to reduced GHG emissions and low altitude ozone toxicity, low incidence of acute respiratory infections, enhanced land and fuelwood conservation due to improved cooking methods, increased jobs and higher incomes.			

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Lebanon	Association Agreement (AA) with EU focusing on trade of olive oil .	Scenario analysis; rapid cost-benefit analysis; stakeholder consultations and focus group meetings.	- A small number of producers have increased export but most small scale farmers not taking full advantage of the duty-free quota due to quality standards, thus no significant impacts from AA in the current situation; - Many dispersed producers depend on a few traders, who could control price, but also face high cost due to lack of infrastructure, limited institutional support, increasing foreign competition, and unpredictable supply; - No incentive to raise quality as prices are not differentiated;	- Trade regulations, including quality standards, duty-exemption over time etc. should be communicated to all parties concerned; - Government to encourage regional branding and search for niche market; - EU to support product promotion; - Government to improve inter-ministerial coordination in their support for the sector; - Government to invest more, in areas such as testing labs, disseminating information, building database, training to improve quality of production and by-product management, increase public access to credit, and waste water treatment, etc.; - Set up a national olive oil office and have a national policy, create and strengthen institutions to enforce laws, and decentralising quality check; - Strengthen partnership with the private sector and NGOs.	- Initiative already taken by NGOs and government agencies to set up an official tasting panel; - Input into the Action Plan that will be submitted to the EU by Govt. of Lebanon Coordination mechanism to strengthen public, private and NGO partnership.	The project's Steering Committee to implement proposed actions and coordinate activities as follows: - Raise awareness of the potential benefits of the AA, disseminate project results and best practices for olive oil production; - Ensure training of trainers (agro-engineering); - Ensure the creation of a regulatory framework coupled with an accreditation system giving incentives for upgrading mills and improving product quality; - Promote the use of GIS for regional branding/labelling; - Set up a financing mechanism linked to scale/ quality production and waste management.; - Follow up on the creation of the testing panel.

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- Meeting the requirement of the AA would lead to a benign cycle of shift to high-quality virgin oil, increased export revenue, increased employment opportunities and income, and hence increased spending on education and health, reduced rural-urban migration especially of the young, and improved environmental performance.			

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Russia	Tomsk Oblast regional development strategy and socio-economic development programme ("Strategy").	Scenario analysis; risk analysis; stakeholder consultations.	- Rigorous strategic planning with clear priorities, focus, goals, objectives, and the activities, many compatible with sustainable development; - The Strategy lacks flexibility to consider different mix of development activities and respond to changing circumstances; - The Strategy lacks consideration of linkages such as between the Strategy Poverty reduction Strategy, and between "green image" and "attractive investment environment"; - Focused on the developed part of the region, missing out other areas hosting more than half of the residents especially rural and vulnerable groups; - The Strategy is perceived as a Leader's Strategy;	- Set up a Tomsk Oblast Sustainable Development Council attached to the Oblast Administration to ensure continued development and self-learning of the Strategy; - Transform the "Leader's Strategy" to "Everyone's Strategy" by supporting sub-regional level strategy development; - Organise Strategic Conversations by linking the Strategy to major international issues and trends; - Having a Strategic Radar for monitoring, evaluation, and adaptation.	-Project recommendations little considered in the course of the current Strategy development, but intend to be incorporated in the next planning cycle; - The regional government will conduct similar stakeholder consultations in future strategic planning.	

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- A welcome shift from resource industries to innovative technology and education and research complex; - Economic inefficiency and environmental problems linked to abandoned oil and gas sites, should support high-quality deposit reclamation; - Nuclear waste into aquifers and emission and discharge of other radioactive substances, should enhance regulatory and compensatory mechanisms, and transparency; - Level of education and research may not be competitive, should emphasize continued environmental education to cultivate specialists at all levels;			

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Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- Removing agricultural subsidies good for environment, but has social costs, should support alternative livelihoods; - Traditional natural resource use left out by the Strategy, though critical for survival of remote communities, should develop policies on this.			

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
Uganda	Draft trade policy and fisheries policies.	Stakeholder consultations; scenario analysis; supply and demand analysis.	Draft trade policy: - Environmental issues limited to those related to anti-dumping/ countervailing measures; - Sanitary/phytosanitary requirements not articulated; - No mention of sectors that have potential for trade growth. Fisheries policy: - The 2004 Fisheries Policy would lead to increase in per capita fish consumption (supported by increase in aquacultural production) and in the Maximum Sustainable Yield (MSY); - There may be major environmental risks from intensive commercial aquaculture production;	Consult with communities and use fishing revenues on community projects especially on the poor's access to health, primary education, safe drinking water; - Use economic tools to encourage sustainable fishing practices and provide funding for fisheries management; - Address the concerns of those who are negatively affected – e.g. those who have to surrender fishing rights to communities; - Engage the private sector; - Strengthen environmental laws, - Urgently develop guidelines of Environmental Impact Assessment for Aquaculture.	- IAP summary passed on to be considered in next drafting of TP; - Commitment of policymakers to assess next draft or final NTP; - No immediate changes expected in the Fisheries Policy; - Efforts by the Department of Fisheries Resources and National Environmental Management Authority of Uganda to create an effluent charge system to protect Uganda's fisheries were revisited.	- Develop Environmental Impact Assessment guidelines for Aquaculture; - Design and pilot an effluent charge system to protect fisheries and other natural water systems and wetlands; - Strengthen the capacity of Inter Institutional Trade Committee (IITC) to address trade and environment issues.

▶

Country	Assessment target	Method	Key findings	Key recommendations	Effects of the project	Follow-up (planned or proposed)
			- On the basis of the current Fisheries Policy, ecosystem manipulation could increase per capita consumption (especially benefiting pregnant women, children, and the HIV/AIDS infected) and increase MSY (more income for women to spend on education and health), but with risks in terms of increased pollution, disease contamination, and domination of invasive species.			

1. Brazil: Integrated assessment and planning (IAP) in the context of the Sustainable Amazon Plan

With focus on the BR-163 Highway area of influence and the soybean sector

1.1 Introduction

This project's objective was to evaluate the "Sustainable Development Plan for the BR-163 Highway area of influence" (hereinafter referred to as the Plan). The Plan was part of the Sustainable Amazon Programme ("Programa Amazônia Sustentável" or PAS), itself a response to rapid intensification of regional economic activity driven by growing investments in soybean production. The Plan aimed to coordinate government efforts to discipline land tenure and land use, and address environmental impacts resulting from building the road.

The IAP project also sought to add knowledge, enhance capacity and strengthen participation in the planning process. The target audience included planners from the 21 Federal Ministries who made up the working group for the BR-163 Plan, state governments, the private sector (especially agribusiness), academic institutions, and national and multilateral development agencies.

1.2 Methodology

The methodological procedures were developed from UNEP's "IAP Guidelines for Pilot Projects"; exchanges of views between the project team and UNEP; and the team's participation in project review meetings organized by UNEP. The learning-by-doing process was a long but rich one. It began with the National Launching Workshop held in October 2004. The meeting of representatives from the Federal Government; State Governments of Pará, Mato Grosso and Amazonas; civil society (social movements and NGOs); the private sector; universities; and national and multilateral development agents produced recognition of key problems (land tenure and land use, massive deforestation, poverty and migration) and priority locations (Sorriso/Lucas do Rio Verde sub-region, Santarém sub-region and Novo Progresso sub-region).

The methodological strategy was to utilize available research, information and data; established venues

such as the Inter-ministerial Working Group (IWG); and legally required public consultation for the Plan. Initially, the project team analysed stakeholders' interests and behaviours with stakeholder mapping techniques. For the substantive part of the analysis, the team adopted scenario-building techniques. Analytical procedures included identification and selection of key indicators, and also identification of correlations and causalities using cross-table techniques.

Four scenarios were built from a combination of two exogenous criteria - market dynamism and governance. To build the scenarios, multidisciplinary roundtables were organized. A matrix was then created for comparison purposes from which policy recommendations and conclusions were presented. A final methodological note: If IWG members had been more involved in a systematic way, the learning process would have been more effective and the recommendations more transparent and legitimate. The IWG could also have formulated integrated policies for their own scenarios.

1.3 The planning process

The Sustainable BR-163 planning process was part of a Federal Government strategy to regulate the territorial occupation and development process of the BR-163 Highway area of influence. The Amazonian region is a vast continuous forest area of 6.4 million km^2, of which over four million km^2 is found within Brazilian territory. The Brazilian Amazonian region has been experiencing intense and continuous deforestation in recent decades. Year after year, the expansion of agriculture, cattle-raising, urbanization and infrastructure projects has led to unbridled and predatory occupation, and dramatic reduction of the forest area. Land clearance is moving northward from the northern Mato Grosso, and westward from eastern Pará towards the preserved areas of the Amazon, creating a mosaic of disorganized and intense deforestation called the "Deforestation Arch".

Therefore, the BR-163 Highway is of crucial importance for environmental, economic, social and political reasons. The highway, also called Cuiabá-Santarém, links the city of Cuiabá (centre of Mato Grosso state) to the city of Santarém (on the shore of the Amazon River in Pará state), and is thus placed exactly in the deforestation frontier zone. The highway is also an important transport route for soybeans, linking the Northern Mato Grosso production area to Santarém Port where grain shipments embark for the Northern Hemisphere.

Trusting in their own valuations, trading companies are investing in export infrastructure, such as the Cargill warehouses and export terminal, in Santarém, through partnership with the State Government. Other large companies, namely Bunge, Maggi, Archer Daniels & Midland (ADM), Olvepar and Coinbra are also making investments linked to the use of this highway for their shipments. These private and public investments are encouraging the rapid increase of the commercial farming sector, especially soybean production around Santarém.

The building of the BR-163 Highway is today a matter of conflict and intense debate due to its significant socio-environmental impact and economic stimulation of regional soybean production. At the moment, only the first part of the highway in Mato Grosso and the last part in Santarém have been built. The private soybean sector, together with local stakeholders and politicians, are asking for the continuation of building work for the whole highway. The mere prospect of restarting

highway construction has caused speculative land appreciation along the area of influence. On the other hand, environmentalist organizations and local communities are pleading for an improvement in public regulations to control indiscriminate and illegal land-grabbing processes, illegal deforestation and violation of preservation areas.

The response of the Brazilian Federal Government has been the creation of the IWG to formulate and implement a sustainable development plan for the BR-163 Highway area of influence. Prior to this, emergency measures were imposed through an Action Plan for Deforestation Prevention and Control in the Amazon region.

The only long-term investment planning process recognized officially in Brazil is the Multi-Annual Plan 2004-2007 ("Plano Plurianual" or PPA), which is reviewed yearly as a Budget item and voted on by the Congress. In formal terms, all other ad hoc processes must be subsidiary and subsumed to PPA, such as the Sustainable Development Plan for BR-163.

Being a general framework, the PPA is a four-year arrangement to guide government investments for development purposes. Specific to the Amazonian region, three institutional efforts for integrated planning and coordination have been developed since 2003:

1. Sustainable Amazon Programme ("Programa Amazônia Sustentável" or PAS).

2. Action Plan for Deforestation Prevention and Control in Legal Amazonia ("Plano de Ação para a Prevenção e Controle do Desmatamento na Amazônia Legal").

3. Sustainable Regional Development Plan for BR-163 Highway Area of Influence ("Plano de Desenvolvimento Regional Sustentável para a Área de Influência da Rodovia BR-163 Cuiabá-Santarém – Plano BR-163 Sustentável").

The main objective is to address the need to widen the State presence in the region, based on a pluralistic agenda of actions that will enhance the governance over the land occupation dynamics and generate capacity to direct the production transformation processes. There are three strategic objectives:

1. To stimulate the development process with equity, technological capacity and support for new entrepreneurships, based on the sustainable use of forest resources and promotion of traditional and indigenous people.

2. Reduction of illegal deforestation associated with predatory land occupation, through effective land tenure and land use.

3. Strengthening and empowering civil society in the region, so that the advance in State presence can see synergy and engagement with local society.

With these broad and ambitious objectives, the IWG led by the Ministry of the Civil Cabinet of the Presidency formulated policy guidelines for the proposals from the 21 sectoral ministries. All the proposals were submitted for scrutiny through two public consultations. The documents contained a comprehensive and exhaustive list of activities organized by theme and sub-region. The themes were: (a) territorial regulation and environmental management; (b) incentives for productive activities; (c) infrastructure for development; and

(d) social inclusion and citizenship. The documents incorporated activities from different ministries under the same theme, pointing to the need for coordination.

This procedure, however, did not avoid contradictions or conflicting activities, and here public consultation played a crucial role. Stakeholders' interests led to conflicting policy choices. Another issue was the absence of an overall goal and indicators, which could have been analytical and planning tools. There was thus no way to assess whether objectives so boldly formulated would ever be reached, or that actual social, environmental and economic changes were made.

Moreover, PPA's planning process did not discuss the financial aspects of the activities proposed and the time horizon of the investments, even though these were typically the thorniest areas of decision-making. In principle, PPA followed the liturgy and logic of a formal system, but with its shortcomings, would perhaps have no effect on inducing sustainable development.

For the Plan, however, lack of stakeholder participation was not a major issue because public consultation was extensively adopted by the planners. They promised a democratic procedure unusual in the country's planning processes, though one that would be difficult and very expensive to put in practice at the national level. To assess stakeholder participation in the Plan, the IAP project team interviewed around 100 participants who had been involved in the Plan's second stage of consultation.[1]

Although with some sampling basis due to the small sample, the results still shed light on stakeholders' views and expectations of the process, which were:

- No social group was strongly opposed to the highway, although 23 per cent of representatives had concerns and placed conditions on its paving. The concerns included the increase in land prices from speculation, expulsion of family workers, violation of indigenous land, environmental degradation from deforestation, increase in migration and rise in violence. Those especially concerned were the potentially most affected such as smallholders, workers and civil society. Among the benefits expected from the highway were reduction of transport costs (95 per cent of representatives agreed), access to public services (46 per cent), and employment opportunities (34 per cent).

- Migration due to the new highway was the most obvious problem perceived by all social groups.

- There was strong identification by the private sector with the Municipal Government on highway construction. Another important convergence of interests was between the Federal and State Governments. The civil society represented the third alliance of interests. This project would clearly show policy implications from alliances formed for the implementation of the Plan.

- Among the solutions identified by stakeholders, especially those likely to be most negatively

[1] Stakeholder representation was: Federal Government (9 representatives), State Government (8), Municipal Government (17), large-scale farmers (9), timber companies (5), urban entrepreneurs (9), small farmers (9), urban workers (9) and NGOs (7).

affected, improvement of public policies was the most significant. This included job creation and control over violence and illegal deforestation. The private sector and Municipal Government pointed to economic growth as the solution.

- Of the development bottlenecks identified by stakeholders, the absence of government action, especially by the national land reform agency ("Instituto Nacional de Colonização e Reforma Agrária" or INCRA) and Environmental Protection Institute ("Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis" or IBAMA), was identified. Land issue was the most relevant and wide-ranging problem. The absence of the Federal Government was felt the most.

- On the issue of participation, the absences strongly identified were that of governmental institutions including INCRA, IBAMA, National Indigenous Foundation ("Fundação Nacional do Índio" or FUNAI), and Brazilian Enterprise for Agricultural Research ("Empresa Brasileira de Pesquisa Agropecuária" or EMBRAPA), indigenous communities, rural workers and smallholders. Another concern was whether their views would be heard. There was pessimism that the future would continue along the lines of "law of the jungle".

History has shown that indigenous people are the most deeply affected and their views and input are crucial to any policy formulation. However they were not able to take part in these consultations due to distance and location. A third round of consultations has been reserved especially for them.

1.4 The expansion of the Deforestation Frontier and soybean production growth

The IWG defined the area of influence along the highway and divided it into three Meso-Regions (Northern, Central and Southern) with eight sub-regions. The Southern Meso-Region corresponded almost entirely to the northern Mato Grosso State, which included the transition from the cerrado ecosystem (a kind of Brazilian savannah) to the meridian Amazon, an area of 0.25 million km^2. This Meso-Region is where soybean production has vastly expanded in the last 15 to 20 years. Natural cerrado and forest areas have been converted into plantation fields. There, the highway begins and it is paved.

The Central Meso-Region corresponded to the centre-western Pará State and part of the eastern Amazonas State, an area of 0.48 million km^2. This is where the Deforestation Frontier, a band of cattle raising and soybean land use encroaching from the south, is seeing increasing social conflicts.

The Northern Meso-Region corresponded to the north-western Pará State and also part of the eastern Amazonas State, covering an area of 0.50 million km^2. This Meso-Region is known as the "Amazonas River Flume" region, and is driven by the economic dynamics of the River. Soybean expansion in this region is fast but driven more by the port activity in Santarém.

For the IAP project, key indicators of these regions were developed. The first indicator selected was the performance of soybean production. Soybean production has been growing consistently since

its introduction in southern Brazil, reaching the cerrado regions of Mato Grosso, Mato Grosso do Sul and Goiás in the 1980s. The area under IAP review became increasingly attractive for the crop despite difficulties in infrastructure, especially transportation. The options for transportation corridors now include the Madeira fluvial/highway to Itacoatiara port; Central-North fluvial/highway/ railway to Itaqui port; and the BR-163 Highway to the port of Santarém-PA.
With more options, transport costs have been lowered.

The agribusiness sector dominated by large trading companies is investing in the region, anticipating production expansion and business opportunities. In the BR-163 area of influence, the Southern Meso-region is a consolidated soybean production area, accounting for more than 90 per cent of the regional production area (2.38 million ha in 2004). The production frontier is moving northward to the forested area, although the Extreme-North Sub-area is currently cultivated over 0.145 million hectares. The Northern Meso-region is the second fastest growing soybean production area, although the area cultivated is only limited to 16,000 hectares. The Central Meso-region, the area most known for social conflicts, has practically no soybean production. Instead, indigenous territories, conservation areas and scattered family producers dominate the scenery.

Cattle raising is the second most important economic activity in the BR-163 area of influence. It is in the Northern and Southern Meso-regions that cattle herding has expanded most rapidly. For instance, in the sub-region of Transamazonica Oriental, the numbers of cattle rose from 112,000 heads in 1990 to 961,000 heads in 2003.

Excluding soybeans, other annual commercial crops in the BR-163 area of influence are maize and cotton, mostly cultivated in the Southern Meso-region. Cultivated areas of both crops are growing, although not as rapidly as soybeans. Some crop varieties, notably rice, cassava and haricot beans, are cultivated by family farmers on land razed by cattle farmers as part of soil management programmes.

Timber extraction was steady in the Northern Meso-region, buoyant in the Southern Meso-region and becoming more popular in the Central Meso-region up to 2003. Timber cutting is especially active in the Central Meso-region, once the most preserved area.

Complementary analysis of macroeconomic indicators revealed that the Southern Meso-region was by far the strongest in Gross Domestic Product (GDP) growth, confirming the strong performance of commercial agriculture indicators. The other two Meso-regions were also growing in economic activity. However, this has not generated more income for workers though employment rose, especially in the service sector.

From land tenure, land use, and price indicators found in the 1996 Agricultural Census, the team understood that rural establishments such as farms were concentrated in the Southern Meso-region. Of the total area 1.23 million km^2 for all three regions, farms occupied only 16.7 per cent. Land prices follow market signals in Brazil. In the productive Southern Meso-region, prices reached a heady average of R$5,650 per ha, compared to R$1,582 in the North. Even pastureland prices, which were typically a third of those of cropland, were twice as high in the South compared to the North and Central.

Another social indicator was the Human Development Index (HDI), which stayed relatively low compared to other regions in Brazil. In the BR-163 area of influence, the Southern Meso-region had the highest index, while the Northern Meso-region had an index even lower than the Central region. All Meso-regions made progress here in the period 1991 to 2000.

The North remained the poorest region, the team found. Between 1991 and 2000, poverty did not fall in this region. In matters of health though, approximated by malaria cases, considerable progress had been made during the period. In the most severely attacked state of Pará, malaria cases fell from 248,000 cases in 1999 to 106,000 cases in 2004.

The most significant environmental indicator the project team utilized was the size of deforested areas, which increased in the Southern Meso-region from 96,469 km^2 in 2000 to 143,563 km^2 in 2004. The rate of deforestation was growing at 12.2 per cent a year. The Central Meso-region had been deforested more heavily at 22.1 per cent while the South's rate was 8.8 per cent a year during the same period. This was during the period of rapid expansion of soybean production, especially in the South. These figures reinforced the argument that the soybean was not the primary cause of deforestation, although strong correlation had been found by the Brazilian Forum of NGOs and Social Movements for Environment and Development ("Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento" or FBOMS) in a regression analysis in 2004 using the data for the same period.

In sum, data analysis corroborated the argument that frontier processes of forest land clearance (deforestation) were exacerbated by economic activities such as cattle raising and the expansion of commercial crops, especially soybean, yet the economic activities did not reduce poverty.

The "winners" in such a situation were the groups that had greater ability to adapt to the new competitive environment. They included soybean farmers and processors; local elite; trading companies; service sector linked to agro-industries; family farmers near dynamic urban centres; and entities uninterested in environmental, social or legal norms, including cattle ranchers, illegal loggers, landowners, and agents of illegal businesses.

The "losers" were traditional people and family farmers with traditional farming practices, as well as inefficient cattle ranchers facing competitive pressure. They also included indigenous communities, *quilombola*[2] communities, land squatters, logging companies, unskilled labourers, landless rural workers, and local urban populations.

1.5 Integrated assessment and scenarios

The originally proposed scenarios were situations where: (a) the Plan is not implemented; (b) emergency investments are made through the Plan; and (c) the Plan's structural investments are slightly modified to include economic market dynamism as a criterion. The rationale for the third scenario was that regional processes are clearly determined by such dynamism, especially soybean production. Also, future scenario outcomes according to the project team would

[2] People descended from colonial slaves.

depend not only on the features of governmental interventions, but on the combined effects of interventions and free market performances, which were closely connected to international trade.

Specifically, these combined effects were crucial to understanding the Deforestation Frontier mechanism, and the relationship between soy expansion and deforestation. Some authors would even argue that soybeans had no central role in deforestation, but that cattle-raising did. That would be true only if the immediate agent responsible for deforestation was taken as its primary cause, but inaccurate if the dynamic chain effects were taken into account.

Deforestation results from speculative land appreciation and illegal occupation. The process starts from a "land market", where "free land" is sold cheaply. After being deforested for wood, such land is converted into cattle pastures and gains value as land for agribusiness plantations, especially soybeans. Generally, soybean production establishes itself in areas already "prepared" by pasture farms, and so does not cause deforestation directly. But as an element in the chain of the deforesting process, soybean production contributes to land speculation and subsequent effects.

Two variables exist (Table 1) to feed into a matrix for scenario building: economic market dynamism (EMD), and public policy capacity (PPC). The other two independent variables are strengthening of effect, and non-strengthening, through government intervention.

These two main determinant vectors were examined for their impact on the indicators. A non-strengthened PPC is associated with an increase in deforestation, poverty, disorganized/violent territorial occupation, illegality and criminality, land concentration, dominance of traditional oligarchies, and corruption and collusion in regional governments. A strengthened PPC will promote more controlled land and environmental management and create better social indicators, such as improvements in income, employment, education, health, and HDI.

Table 1: Scenario matrix

		Economic market dynamism (EMD)	
		Not strengthened	Strengthened
		Scenario 1	**Scenario 3**
Public policy capacity (PPC)	Not strengthened	Economic stagnation and inequality. Continuing social and environmental problems.	Economic growth and inequality. Uncertain social effects. Growing environmental problems.
	Strengthened	**Scenario 2** Endogenous economic development and distributive socio-environmental governance	**Scenario 4** Sustainable development with globalization stimulus and distributive socio-environmental governance

A strengthened EMD will be a vector pushing up economic indicators such as GDP, income, employment, soybean production, cattle raising, timber cutting, and family farming production. On the one hand, it may bring positive effects such as growing wealth and better quality of life. On the other hand, a strengthened EMD may lead to concentration of wealth, causing negative social and environmental effects. The private sector's performance will, therefore, depend on the regulatory environment. In the absence of rules, the private sector will generate benefits in a concentrated and exclusive way. Within an effective regulatory environment, however, private sector activities will generate positive economic multiplier effects, leading to the rejuvenation of private activities, employment, income and internal markets in a virtuous cycle. Therefore, for a scenario with sustainable development to be achieved, a regulatory framework capable of inducing economic, social and environmental chain effects on a positive scale is needed.

To illustrate the integrated effects of select indicators, a synthesis matrix table is used (Table 2):

Table 2: Synthesis matrix of scenarios

Variables	Indicators	Scenario 1 Low dynamism and low governance	Scenario 2 Low dynamism and high governance	Scenario 3 High dynamism and low governance	Scenario 4 High dynamism and high governance
Environmental	Deforestation	– – –	– –	– – – –	–
(direct and	Pollution	– – –	–	– – – –	– –
indirect)	Soil erosion	– – –	–	– – – –	–
Social	Employment	+	+ +	+ +	+ + + +
	Income	+	+ +	+ + +	+ + + +
	Poverty	– – – –	– –	– – –	– –
	Education	+	+ +	+ +	+ + +
	Malaria	– – –	–	– – – –	–
Economic	GDP	+	+ +	+ + +	+ + + +
	Soybeans	{*} (*) [* * *]	{*} (*) [* * *]	* * *	* * * *
	Cattle	* * *	* *	* * * *	* * * *
	Timber	* * * *	* *	* * * *	* * *
	Family - agriculture	{* *} (*) [*]	{* * *} (* *) [* *]	{* * *} (*) [* *]	{* * * *} (* *) [* *]

Key:	Positive effect	Negative effect	Economic indicator
Low	+	–	*
Medium	+ +	– –	* *
High	+ + +	– – –	* * *
Very High	+ + + +	– – – –	* * * *

The following notations have been adopted for Meso-Regions:
{ } Northern Meso-Region
( ) Central Meso-Region
[ ] Southern Meso-Region

1.6 Recommendations

Integrate policy measures

- Combine federal and state programmes for effective implementation of the Plan, using converging targets and social monitoring tools.
- Implement measures aimed at economic and social inclusion of the poorest, such as access to credit and technical guidance.
- Establish common targets for the BR-163 area of influence.

Reduce illegal land occupation and deforestation

- Strengthen the role, instruments and resources of the INCRA and other federal institutions to combat illegal activities.
- Intensify the process of territorial settlement, using eco-economic zoning tools and municipal directive plans.
- Intensify measures to systematically fight land grabbing, such as speeding up the judicial process and regulating against illegal occupants,
- Promote programmes of social and economic emancipation for the settlers covered by the agrarian reform.
- Implement a special programme to strengthen family farming in the BR-163 area of influence, to fight against regional land speculation.
- Intensify state control over the deforested area in the Santarém influenced zone.
- Implement a Forest Service in Santarém, Itaituba and Novo Progresso.
- Reinforce the operational capacity of IBAMA to control deforestation.
- Implement the Forest Districts policy and other instruments created for territorial management.

Sustainable production, employment and infrastructure

- Develop a scientific and technological programme on the basis of the recently created Amazonian Sustainable Development Centre to improve knowledge and technologies for agroforest, cattle and fishery products.
- Provide a financial mechanism to foster research and extension services and promote diversified and sustainable use of natural resources.
- Support local cluster initiatives by encouraging innovation in non-timber forest products and traditional family farming products, for example in public land settlements.
- Provide a special and differentiated line of credit to promote: (a) alternative economic activities such as poultry and pig industries, under strict environmental monitoring; b) small scale processing plants; and (c) environmentally sustainable projects, including technologically innovative and sustainable production practices in cattle raising, timber extraction and processing.
- Implement economic instruments, including: industrial tax exemption for certified timber; rural land tax differentiation by environmental and technological criteria; goods circulation and service tax differentiation for products from sustainable agro-forestry; and income tax exemption for investment in socially developed environmental projects.

Encourage social inclusion and mitigate social and urbanization impacts

- Map critical poverty areas, to plan and implement emergency investments.
- Align ongoing social policies such as the Zero Hunger and Family Grant with State and Municipality Governments' poverty alleviation initiatives.
- Enhance investments in education in all levels, directed at capacity building to promote innovation and competitiveness in activities based on sustainable natural resource use.
- Strengthen local organizations to ensure favourable conditions for a participatory process of social development in the region, including indigenous people, quilombolas, riverbank dwellers, and traditional fishermen communities, among others.

Monitor performance

This assessment study is offered to decision-makers

responsible for the implementation of the Plan, as a baseline study for the monitoring process that all plans need to establish. An additional contribution of this study is to offer the possibility to create a webpage, run by a group of select institutions to provide information and analysis on sustainable development in the BR-163 Highway area of influence, almost functioning as an observatory.

1.7 Conclusions and follow-up

The project has undertaken the complex task of assessing, with an integrative method of analysis, a complex multi-sectoral planning process. Due to the mounting governance crisis fuelled by social discontent and violence, and environmental degradation worsening with rising economic investment and growth of the soybean sector, the Federal Government of Brazil responded boldly by creating the IWG to implement a sustainable development plan for a region as large as 1.23 million km^2.

The assessment results showed that, in spite of all the complexities and difficulties, the IWG had returned a consistent and very detailed plan with activities organized by themes, which opened the way for multi-sectoral integration and coordination. Furthermore, the participatory process was fully exercised with two public consultations.

The major problems of the plan were neither the correct understanding of the regional problems and their complex linkages, nor realizing what kinds of investment or activity would overcome those developmental or environmental problems. There was in fact a full array of propositions and activities that, once implemented, would certainly fulfil the objectives of the Plan. The problems of the Plan were the missing elements of the planning process, namely: the proper prioritization of activities or investments; their timing and financial costs; resource allocation; and coordination. These would require a good deal of political will that had to be constructed. In this sense any meaningful recommendations should bear in mind these issues.

This IAP exercise has given the Plan new methods and analytical tools, but the lack of quantifiable indicators showing the extent of the problems and possible sustainable solutions made the analysis and monitoring process more difficult. The project could have paid more attention to quantifying the scenario indicators by using regression analysis and simulation models. This would have been possible if resources had been used more efficiently.

It was clear, however, that the BR-163 Highway planners should have been more deeply involved in the IAP process. The IAP project team should now work more closely with the planners within a feasible timeline as a methodological support team.

Another setback of the project was the volatility in the composition of the project team. It is important to recognise that the IAP approach is still a continuous and cumulative process of learning-by-doing. The discontinuity of team membership slowed the solid acquisition of the approach.

For follow-up activities, the three proposals are:

1. Refine the key social, environmental and economic indicators and design quantitative scenarios.

2. Implement the monitoring system for the BR-163 Plan.

3. Replicate the IAP experience in the PAS planning process.

1.8 Abbreviations and acronyms

FBOMS	"Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento", Brazilian Forum of NGOs and Social Movements for Environment and Development
PAS	Sustainable Amazon Plan
IAP	Integrated assessment and planning
NGO	Non-governmental organization
IWG	Inter-ministerial working group
UNEP	United Nations Environment Programme
PPA	Multi-annual Plan (Plano Plurianual)
WSSD	World Summit on Sustainable Development
MDGs	Millennium Development Goals
FUNAI	National Indigenous Foundation
EMBRAPA	Brazilian Enterprise forAgricultural Research
INCRA	National Institute of Colonization and Agrarian Reform
IBAMA	Brazilian Institute of Environment and Natural Resources
PPC	Public policy capacity
EMD	Economic market dynamism
HDI	Human Development Index
GDP	Gross domestic product
BNDES	National Bank for Economic and Social Development
BASA	Bank of the Amazon
IBRD	International Bank for Reconstruction and Development – World Bank
IDB	Inter-American Development Bank

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2. Chile: Integrated assessment of the Ministry of Agriculture's Environmental Agenda

With focus on the forestry, pork meat and wheat sectors

2.1 Introduction

Integrating implies plurality. Without the presence of more than one concern, there is no need for integration. Thus, the effort at integrated assessment at policy level clearly pushes for the adoption of a plural perspective in policy matters. This project distinguishes between three kinds of pluralities. The first is "substantive plurality", which argues that reality is composed of different elements whose assessments require different sets of indicators and measurements. The second is "procedural plurality", which assumes that policy development should consult a broad range of relevant actors in both its design and assessment phases. The third is "methodological plurality", which stands for expanding the repertoire of analytical and participatory techniques used in the design of policies. Following this line of thought, this report was the result of a two-year exercise that began in January 2004, which applied an Integrated Assessment and Planning (IAP) approach to a specific public policy in Chile. The policy selected was the Ministry of Agriculture's Environmental Agenda (MAEA).

The MAEA was developed at the end of 2003 with the goal of establishing the conditions for Chile to participate in the global agricultural market in a sustainable way. Although most actors in the agriculture/environment sector knew about the existence of the MAEA, the policy document missed two important elements. Firstly, it was developed without any impact assessment. Secondly, it was developed without the involvement of stakeholders beyond the Ministry of Agriculture (MINAGRI). These gaps led MINAGRI to participate in the UNEP-sponsored IAP initiative. The Ministry appointed RIDES as the project's researcher and coordinator.

The general purpose of this IAP project was to promote an environmentally progressive MAEA, which reinforces sustainable trade in the agriculture sector and helps to reduce poverty. Specifically, the project aimed at three distinct but related objectives:

- **Coherence.** To improve MAEA coherence with the strategic goals of the Ministry of Agriculture,

the National Commission on Environment, the trade liberalization strategy of the Ministry of Foreign Affairs, and the clean production strategy of the Ministry of Economics.

- **Assessment.** To assess the sustainability impacts of the MAEA and suggest necessary adjustments so that it promotes better environmental performance, reinforces sustainable trade in the agriculture sector and helps reduce poverty.

- **Capacity building**. To enhance the capacity to undertake integrated assessment and planning for sustainable development and facilitate the design of policies, plans and programmes that take into account economic, social and environmental aspects of development.

This IAP project was conceived from its inception as one in which participation was crucial to its success. Thus, participation has played a fundamental role in every objective and at every step of the project. In terms of coherence, this project has provided various spaces for different actors to express their concerns and interests in relation to the MAEA. These included the sessions of the Steering Committee, the two national workshops and the sessions of the thematic working groups. This participatory scheme was satisfactory to most participants involved as they benefited from the discussion and analysis of the MAEA. Since policy assessment is not normally participatory, the participants also appreciated the opportunity to be actively involved in planning.

This executive summary describes how the project objectives were reached, who the key stakeholders were in this process and how this IAP exercise has contributed to more integrated policy making. The target audience of the IAP report is the policymakers in Chile that are in one way or the other responsible for sustainable development, including the relevant Ministries. Local stakeholders and the private sector that may be affected by the MAEA are also relevant readers.

2.2 Overview of the Ministry of Agriculture's Environmental Agenda (MAEA)

The MAEA has determined three elements for future development of environmental policies, programmes and plans in the agricultural sector: diagnosis, objectives (both general and specific) and actions.

- **Diagnosis**
  Chile has a number of natural advantages that facilitate its entrance into the global market for high quality and safe agricultural products. Nevertheless, Chile needs to overcome remaining environmental problems affecting agriculture before these markets can be harvested.

- **General objectives**
  Ensure the conservation of natural and environmental assets and processes. Promote the development of sustainable and environmentally friendly agricultural production that is a competitive and "quality of life" asset for the country.

- **Specific objectives**
  The protection of natural essential processes that make life on Earth possible and also, therefore, agriculture. This includes protection of biodiversity, soils and waters.
  The development of an agricultural sector that views environmentally friendly products and harmless processes as central to their activities.

This meets the modern demands of consumers and thus increases competitiveness in international markets.

The promotion of environmental markets and green businesses through the perspective that understands environmental management as an opportunity to develop new products and markets rather than a restriction.

- **Actions**

  Modernization and strengthening of nature conservation and protection.

  Efficiency, efficacy, equity and responsibility in environmental management.

  Sustainable and safe agricultural production.

  Development of environmental markets and green businesses.

  Capacity building.

  Participation and trust.

2.3 Assessment process

2.3.1 Preliminary assessment of the MAEA

A preliminary assessment of the MAEA had the objective of identifying substantive and procedural aspects of the Agenda that are critical from a sustainable development point-of-view. To this end, a methodology of conducting personal interviews and critically analysing the MAEA was employed. Interviews were conducted with two groups. The first included members of the project's Steering Committee who were asked questions about substantive matters, while the second group, made up of individuals who had helped elaborate the MAEA, were asked questions about procedure.

Most people involved in assessing the MAEA believed that it is an instrument with potential to engender better environmental performance in agriculture. However, for this to materialize, the MAEA has to depart from only stating intentions to lay down concrete plans for action. One member said that it had to "come down to earth". Another stated that there was still work to do in order to materialize it. A third said that what had been achieved up to now had been the easy part and the rest required commitment, resources, responsibilities and coordination between public organizations. From these sentiments, it is evident that the MAEA is not yet fully formed as a policy instrument. Still in the eyes of some, MAEA was structured for environmental objectives which could conflict with other policies from MINAGRI that were more built for agriculture concerns.

In the analysis of impacts, most did not identify negative effects of the MAEA. However, they did recognize a few omissions or absences. The social dimension of sustainable development was mentioned. Although it was recognized that the focus of the MAEA is environmental and that MINAGRI's main role was not reducing poverty but to support agricultural activity, some believed that social issues for small farmers, such as employment, health, capacity building and poverty, should play a more important role. Similarly, the MAEA was criticized for not suggesting to use traditional knowledge to enhance development of green markets. One interviewee believed that these issues were not priorities for the public sector.

Another specific criticism concerned the absence of economic rationality in the MAEA. Since the agricultural sector can achieve sustainability through different means, society has the moral obligation to pursue the most economic path, which the MAEA did not acknowledge. More emphatically, some

interviewed believed that the MAEA should press for efficient use of environmental resources, and internalization of related costs and benefits that would increase market transparency and efficiency. Other concerns were that: the MAEA did not mention the mechanisms which coordinated inter-institutional activities and relations, there was no explicit definition of the roles of MINAGRI and CONAMA, and there was no mention of efforts by private individuals to conserve biodiversity through National System of State Protected Wild Areas (SNASPE).

Many individuals involved in the IAP process felt that the MAEA is positive for the future of environmental sustainability in agriculture. It has the potential to increase economic, environmental and social benefits, while encouraging consensus-making within the public sector on environmental issues.

2.3.2 Final assessment of the MAEA: forestry, pork meat and wheat sectors

After the results of the initial assessment of the MAEA were presented at a workshop in Santiago in May 2004, a meeting of UNEP, MINAGRI and RIDES took place to decide the future of the project. During the meeting, it was decided that the project should continue based on an approach consisting of three main principles: (a) to structure the assessment in terms of productive sectors instead of environmental objectives; (b) to make the appraisal participatory by establishing working groups for each productive sector being assessed, and involving their stakeholders; and (c) to adopt a scenario approach for sector assessment.

After more meetings between RIDES and Oficina de Estudios y Política Agraria (ODEPA), three productive agricultural sectors were selected: forestry, pork meat and wheat. These sectors were chosen due to their relevance to environmental impact, trade, economic growth and rural poverty. The corresponding working groups were then formed. Each group comprised of one ODEPA representative with technical competence in sector, one from CONAMA, two from the private sector (a big-company representative and a small-company representative), a civil society delegate, at least one member from the Steering Committee and consultants from RIDES.

Due to RIDES's inexperience with scenario assessment, applying such an approach to policy evaluation was not an easy task. After studying specific papers and discussing the issue with UNEP and ODEPA, a common assessment structure for the three sectors selected was determined:

- Description of the sector
- Barriers to sustainability of sector (economic, social and environmental)
- Policies attributable to the MAEA
- Scenario building for 2010 (scenarios with and without MAEA)
- Scenario assessment in terms of impact on sustainable development (trade, poverty and environment)
- Policy recommendations.

The necessary elements for assessment were then prepared by RIDES and discussed in three working group meetings. During the first meeting, the description of the sector, the barriers to sustainability and the policies attributable to the MAEA were presented and discussed. The second meeting focused on scenario building. Scenario

assessments and policy recommendations were presented and discussed in the third meeting. After arriving at consensus during these meetings, documents reflecting these agreements were sent to all working group participants via e-mail for their final approval.

2.4 Results and recommendations

To disseminate the results and to validate them with a wider audience, a workshop was held in Santiago in October 2005. A summary of these assessments, stressing the most relevant aspects for each sector, follows:

2.4.1 Forestry sector

Forestry is an important sector in Chile. Forests are primarily harvested for firewood and industrial purposes. They are also used for animal grazing and protected for conservation reasons. In 2003, the forestry sector consumed 39.1 million m^3 of wood, of which 70 per cent were industrially processed, and 97.7 per cent of this industrially processed wood came from plantations and the rest from native forests. Of the 30 per cent harvested for firewood, 61 per cent came from native forests and the rest from plantations. Since the 1990s, the forestry contribution to GDP has been growing, reaching 3.4 per cent in 2003. Only the mining and industrial sectors contributed more.

Most forestry production is exported and this has grown during the last decades. The forestry industry has also been able to grow and diversify its production, and is now exporting wood pulp, sawn timber, panel products, woodchips, and others. Whereas in 1990 the sector exported US$809 million, this figure reached US$3,032 million in 2004. The most important product is pulp. During the last decades, the forestry sector has directly contributed approximately 2 per cent of the Chilean labour force. The sector labour force grew from 50,691 in 1980 to 118,816 in 2003. If indirect employment (transport, professional services, hotels and others) is factored in, the forestry sector was estimated to provide 420,000 jobs, or approximately 6.5 per cent of the national labour force. With a further calculation for informal employment, taken as 36 per cent of the labour force in the forestry sector, total sector employment in forestry reached 656,000.

Within the forestry sector, four subsectors with their own environmental problems and challenges can be distinguished. They are biodiversity conservation[1], native forest, plantations and industry (e.g. wood pulp, sawn timber and panel products). Chile's biodiversity is highly endemic and unevenly distributed within the country. Deforestation and forest substitution are the main threats to major forest ecosystems. Although there is no substantive evidence of the links between agriculture and ecosystem degradation, there are arguments that agricultural activity has significantly damaged existent forest ecosystems in central Chile.

There are approximately 15.4 million ha of Chilean forests, or 21 per cent of the continental surface area of the country. While 13.4 million ha, or 86 per cent of forested area, are native forests, the rest is composed of forest plantations. Native forests in Chile are concentrated in the southern end of the country, with

[1] Biodiversity conservation was considered part of the forestry sector because in Chile the same authority that regulates forestry is in charge of managing and regulating national parks. The decision to include this issue within the forestry sector was supported by the fact that a very important part of Chilean biodiversity comes from native forests.

82 per cent located within X and XII regions. Most Chilean forests are classified as "temperate" due to cold winters. Since 1985, approximately 192,000 ha of native forests have disappeared due to four main causes: substitution for plantation forests (42 per cent); conversion to agricultural land (27 per cent); fire (22 per cent); and illegal cutting (9 per cent). The three main pressures on native forests, coming from medium to small scale farmers, are firewood harvesting, cattle rearing and abandonment. There has been a long-running debate in Chile about the management of native forests. A "Native Forests Law" has been under consideration for ten years.

From 1985 to 1996, forest plantations were responsible for the destruction of important tracks of native forests. This practice is almost absent today. Now, the major environmental problem related to forest plantations is the lack of good forestry practices, especially by non-certified plantations. Intensive use of pesticides, drying out of water courses and soil hardening are examples of practices that cause intense conflict between plantation owners and local communities.

The forestry industry has created important negative environmental impacts. One of the greatest controversies between 1990 and 2000 was the harvest of native forest for woodchip production. Now this practice has faded away. Other negative consequences are limited to bad smells and noxious liquid discharges by pulp plants, which result in tensions among pulp plants, local communities, environmental groups and other productive sectors, such as vineyards and milk producers.

A number of specific initiatives through MAEA are needed to address the sustainability issues in the forestry sector:

- **Biodiversity**
- Support the National Biodiversity Strategy and set in action clear plans arising from broad agreements on what should be conserved in Chile.
- Encourage implementation of a National System of Wild Protected Areas (SNASP) that is representative of Chilean biodiversity and integrates efforts from both the State and the private sector, including private sector economic incentives for conservation activities.
- Generate inter-institutional coordination mechanisms for biodiversity conservation and sustainable tourism.

- **Native forests**
- Support the approval and application of the Native Forest Law.
- Encourage the development and implementation of valuation mechanisms within native forest environmental services such as landscapes, water quality, soil conservation, carbon sequestration, biodiversity conservation and more.
- Encourage the development and implementation of valuation mechanisms within non-wood uses of native forests (i.e. herbs, mushrooms and bark) so that small landowners can economically benefit from conservation.
- Implement environmental educational programmes for those living in or close to native forests with the objective of promoting its sustainable use and conservation.
- Encourage the regulation of fuel wood to be used in a sustainable manner, involving the following institutions: CONAMA, CONAF and CNE.
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• **Plantations**
- Expand the coverage of the forestry securitization programme[2], so that it facilitates access to the benefits of DL 701 for small and medium landowners who prefer financial returns in the short term.
- Support the implementation of good forestry practices among small and medium plantations, for the reasons of achieving environmental certification, reducing local conflicts and increasing competitiveness in both local and international markets.

• **Industry**
- Support the signing of a clean production agreement with the wood pulp industry, which spurs investment in cleaner technologies (i.e. odours, water emissions and air emissions control).
- Encourage public-private mechanisms with small and medium firms to speed up adoption of cleaner technologies and better environmental performance.

• **Cross-cutting**
- Support an information system on the Chilean forestry sector which measures, monitors and evaluates while highlighting critical issues and participation mechanisms, beyond what the current environmental impact assessment system provides. Transparency and understanding are increased for the main stakeholders.

By 2010 implementation of the above initiatives will have an important impact on the forestry sector. The following table summarizes these impacts (Table 1):

[2] Forestry securitization is a financing option for forestation for small and medium landowners. It resolves their lack of initial capital and covers the long periods without financial returns. A contract is established between a private firm and landowners in which the former has the responsibility of financing forestation and management practices and the latter sells the forest products for a price that is paid annually by the former. The landowner keeps the property of the land.

Table 1: Forestry sector scenario assessment

Indicators	2003-2004		Scenario 2010			
			Business as Usual (BAU)		MAEA	
Exports (US$ millions)	3,000		4,500		+	
Wood consumption	Firewood	Industry	Firewood	Industry	Firewood	Industry
(m^3 thousands)						
Native forest	7,100	650	8,300	340	5,500	4,000
Plantations	4,500	27,000	5,300	36,600	8,100	36,600
Total	11,600	27,650	13,600	36,940	13,600	40,600
Employment	656,000		684,000		877,000	
Rural poverty	NA	NA	--			
Sustainable use of native forest	NA	NA	+ +			
Local environmental impacts	NA	NA	--			
Biodiversity protection	NA	NA	+ +			

Not available (NA); Much less than BAU (--); Less than BAU (-); Equal to BAU (0); More than BAU (+); Much more than BAU.

2.4.2 Pork meat sector

Production of pork meat in Chile has been growing steadily since the mid 1980s at an annual growth rate of 8.8 per cent. Per capita domestic consumption of pork meat has grown from 9.3 kg in 1990 to 18.9 kg in 2003. In 1985, pork meat consumption represented 20 per cent of meat consumption in Chile. By 2003 this figure had grown to 26 per cent. Although the expansion of internal demand has been an important driver in the growth of the pork meat industry, the single most important factor since 1997 has been international demand. Whereas in 1990 pork meat production reached 123,000 tonnes, this figure was 373,000 tonnes in 2004. Since 1997, Chile has been selling pork meat in the international marketplace, especially to Japan, placing it as the most important Chilean meat export. In 1996 pork meat exports were 4,564 tonnes, and in 2004 they reached 114,034 tonnes. In monetary terms, 2004's pork meat exports were valued at US$251.8 million.

During the last decade, pork nurseries have shown little growth in terms of employment. Whereas in 1992 they employed 5,200 people, by 2002 they were only employing approximately 5,600 people. This occurred during a period of growing economic growth by the sector, showing that investment has been going towards technological capital instead of labour. Even so, employment has grown in slaughterhouses, distribution channels and loading systems. According to some in that private sector, the pork meat industry currently employs around 18,000 people in total.

According to members of the working group, the two major environmental problems of the pork meat sector were the risk of underground water pollution by nitrates and local effects like bad smells and truck traffic. Although underground water pollution by

nitrates is mainly caused by pig manure, the intensity and the source of this pollution is yet unknown as there are neither measurements nor baseline figures, which clearly must be addressed. Bad smells originate from pork nurseries, waste treatment systems and guano. These are also important sources of flies and rats. These environmental problems, together with truck traffic, affect not only local populations, but also tourism, other agriculture activities, and even the property market.

A number of specific initiatives through MAEA are needed to address the sustainability issues in the pork meat sector:

- **Economic instruments**
- To develop and implement financial mechanisms, such as subsidies, soft loans and technical support, to encourage undertaking of studies and analysis required by the Clean Development Mechanism (CDM), especially for collective projects addressing waste management of small and medium-sized firms.

- **Information system**
- To develop and implement a baseline system that measures and provides information about underground water quality in the main agricultural basins of Chile. This supports the analysis, improvement and extension of management programmes concerning water discharge in the pork meat and other agricultural sectors.

- **Voluntary mechanisms**
- To develop and implement a third clean production agreement that improves the measurement of nitrogen discharged into water and establishes concrete reduction measures.

- **Land use planning**
- To develop and implement a land use planning instrument that establishes clear land use priorities in both rural and urban land. This minimizes conflicts between the pork meat sector and local communities or other productive activities.

By 2010 implementation of the above initiatives will have an important impact on the pork meat sector. The following table summarizes these impacts (Table 2):

Table 2: Pork meat sector scenario assessment

Indicators	2003-2004	Scenario 2010	
		Business as Usual (BAU)	MAEA
Production (tonnes)	373,000	603,000	653,000
Exports (US$ millions)	252	500	600
Employment	18,000	20,400	22,100
Rural poverty	NA	0	-
Underground water quality	NA	0	+ +
Bad odours	NA	0	--

Not available (NA); Much less than BAU (--); Less than BAU (-); Equal to BAU (0); More than BAU (+); Much more than BAU (++).

2.4.3 Wheat sector

Across Chile in 2002-2003, wheat occupied approximately 400,000 hectares of land. This was a reduction from nearly 600,000 ha in 1989. Yet, this fall in cultivated area of wheat was accompanied by an increase in productivity. Production had thus not decreased, remaining at between 1.2 and 1.8 million tonnes a year. According to FAO's figures, the value of wheat production in Chile reached US$269 million in 2001, contributing approximately 0.4 per cent of national GDP. Despite the economic and social importance of the sector, Chile is a net importer of wheat. Although Chilean wheat imports have declined in relative terms in the last few years, they still play a very important role in meeting domestic demand. Wheat imports amounted to 23.1 per cent of domestic demand in 1992, which was reduced to 10.6 per cent by 2005.

Although there are no official employment figures for the wheat sector in Chile, there are estimates of required labor input per hectare of planted wheat. According to ODEPA, these estimates indicated that, on average for the last ten years, the wheat sector has been employing approximately 6,200 people. Due to the need to secure profitable yields, the wheat sector has undergone development which has put natural resources, especially soil, under severe pressure. Although wheat production practices have improved lately, and tilling is not more common than before, there are still some areas where soil erosion is a serious problem. The situation is exacerbated where the burning of stubble does not permit the conservation of organic matter and nutrients within the soil. Another problem for the wheat sector is the extensive use of fertilizers and pesticides, which leads to soil and water pollution.

A number of specific initiatives through MAEA are needed to address the sustainability issues in the wheat sector:

- **Economic instruments**
- To redesign and strengthen the incentive-based Degraded Soils Recuperation Programme, to meet original objectives of stopping soil erosion, controlling the loss of phosphorus, and stimulating the application of cultivating technologies that protect the soil.

To provide financial incentives and technological transfer to farmers adopting good agricultural practices so that they reduce water pollution.

- **Information system**
- To develop and implement a baseline system that measures and provides information about underground water quality in the main agricultural basins of Chile. This supports the analysis, improvement and extension of management programmes concerning water discharge in the wheat and other agricultural sectors.

- **Land use planning**
- To develop and implement a land use planning instrument that supports the Basins Management Programme administered by CONAF so that it helps control soil erosion problems on a basin level and becomes part of the solution to soil erosion that affects wheat and other agricultural sectors.

By 2010 implementation of the above initiatives will have an important impact on the wheat sector (see Table 3):

Table 3: Wheat sector scenario assessment

Indicators	2004	2010	
		Business as Usual (BAU)	MAEA
Imports (% of total consumption)	7.9	24.2	24.2
Salmon feed demand	NA	NA	600
Employment	6,500	5,200	5,200
Rural poverty	NA	NA	-
Soil conservation	NA	NA	+ +
Fertilizer and pesticide use	NA	NA	--

Not available (NA); Much less than BAU (--); Less than BAU (-); Equal to BAU (0); More than BAU (+); Much more than BAU (++).

2.5 Conclusions

2.5.1 Participatory process

One essential aspect of the IAP exercise has been the participatory process. Through its Steering Committee, workshops and working groups discussions, the project made the environmental objectives of the Ministry of Agriculture more transparent and accessible to the wider agricultural/environment community. It also enabled the growth, and in some cases, the inception of trust among policymakers, the business community and other actors of the agriculture/environment circle. Another strong contribution of the IAP project was getting different ministerial representatives to meet at the same table and discuss openly on environmental objectives and tools concerning agricultural activity.

Still, the inclusive participation process had important shortcomings. As each sector was scheduled for more than two roundtable meetings, coordinating meeting dates and times was not a simple task. Also, generating member-accepted descriptions and scenarios was more demanding than previously predicted, as some representatives required more than five revisions of the final blueprints. From the process point-of-view, constraints arose from the considerable effort needed to make the participatory process successful. Furthermore, integrating views on scenario construction, which required documents from various sources, was an unpredictable and effort-heavy process. These issues delayed the conclusion of the project and expended project resources that could have been directed to more profound analysis.

2.5.2 Role of the stakeholders

This project allowed broad participation in the elaboration and planning process for the MAEA. The relevant stakeholders for each specific sector were involved in at least three aspects: constructing sector descriptions, identifying barriers to sustainable development of said sectors, and assessing projected scenarios. Government representatives also contributed to IAP discussion. They helped to coordinate information flows among the institutions responsible for the policy. Private sector representatives examined possible difficulties, important challenges and necessary resource commitments standing between the MAEA and eventual implementation. To this end, representatives of small and medium scale producers provided a different perspective of sectors such as the forestry and pork meat. They also helped identify barriers to sustainable development. Environmentally concerned groups provided relevant information on environmental impacts, and communities troubled by these effects. The meetings also gave a voice to less represented stakeholders in the participatory processes.

2.5.3 Awareness raising and capacity building

There had been a number of ways this IAP project influenced awareness raising and capacity building. On a broad level, the project helped link the MAEA to the concept of sustainable development. Although the concept may already form part of public policy discussions in Chile, it was once absent in discussions of the agricultural sector. Participants were able to broaden their understanding of the MAEA, along with its economic, social and environmental impacts through this project. Such a new construct had proved original to most of the stakeholders and sustainable development concepts now flourish in their language and communications, even among policymakers.

This IAP project also introduced an innovative approach to policy making and assessment, by encouraging active participation by the government, private sector and civil society. This has allowed gathering and sharing of important information otherwise difficult to obtain. At the same time, this has created space for discussion and agreement on large parts of the MAEA. Supporting documents revised and validated by all relevant parties have become valuable input to decision makers, since they reflect trust and credibility generated during the project.

2.5.4 Effects on the MAEA and policymaking

After evaluating the influence of the IAP project on the MAEA, RIDES has concluded there were three

main effects. The project (a) encouraged a broader consideration of different aspects of the Chilean agricultural sector; (b) integrated the viewpoints of a broad range of relevant actors, and (c) expanded the repertoire of analytical and participatory techniques in policymaking.

The project has also pushed change on the structure and policy orientation of the MAEA. Now, there is an opportunity to view the MAEA as being specific to each productive sector and its particular environmental problems, instead of using it as a blunt instrument advocating one-size-fits-all environmental objectives. By bringing more realism to environmental policymaking, it generated trust and encouraged compromise from the productive sectors. From ODEPA's point of view, it has given new focus to environmental policymaking.

2.5.5 Follow-up activities

The last workshop for the project was held in Santiago in October 2005. Final opinions were gathered and the project results and recommendations were revealed. Constant email discussions and contacts, together with the project's website, have provided the needed space to share information. Still more publicity of the project methodology and results are needed, though currently not planned.

For things to move forward, the willingness of key stakeholders must be present. One of the key players is the Ministry of Agriculture. The MAEA has not been put in place to date. The experts at ODEPA agreed that the IAP project has enhanced the MAEA and clearly underlined the benefits of stakeholder consultation. ODEPA has also expressed willingness to recommend an integrated assessment for the overall agricultural policy.

Another key player is the private sector in Chilean agriculture. Their representatives have actively participated in the IAP exercise and are appreciative. They are now more aware of their responsibility to manage the environment and some producers are willing to contribute financially to solutions. This level of involvement is crucial and so is the support of the private sector for the MAEA. Representatives of the government are also key players and their role will be vital.

Final recommendations for elaboration and strengthening of the MAEA are:

- Carry out similar integrated assessments for all relevant agricultural sectors. This will provide a wider vision of priorities and specific initiatives for each sector as well as common causes across sectors.

- Engage decision makers. This IAP exercise, through a broad and participatory process, has built a strong knowledge base, consensus on the barriers against sustainable development and generated key policy recommendations. To ensure that the benefits can be reaped, key decision makers must be presented with the findings. This will require continued IAP-related capacity building activities with decision makers.

- Engage the private sector further. Farmer representatives in each sector have been very active in the IAP process but further work is needed.
- Assess the financial implications. Many of the policy recommendations will require significant financial resources. The financial implications will need to be analysed to prioritize recommendations.

- Assess the impact of the MAEA on small farmers. Although this IAP exercise identified some obstacles for small and poor farmers, it did not go into depth. Deeper analysis should be performed so that the MAEA avoids putting small farmers under greater pressure.

2.6 Abbreviations and acronyms

CDM	Clean Development Mechanism
CNE	Comisión Nacional de Energía
CONAF	Corporación Nacional Forestal
CONAMA	Comisión Nacional del Medio Ambiente
COREMA	Comisión Regional del Medio Ambiente
CORMA	Corporación Chilena de la Madera
FAO	Food and Agriculture Organization
GDP	Gross domestic product
IAP	Integrated assessment and planning
MAEA	Ministry of Agriculture's Environmental Agenda
MINAGRI	Ministry of Agriculture
ODEPA	Oficina de Estudios y Política Agraria
RIDES	Recursos e Investigación para el Desarrollo Sustentable
SNASP	Sistema Nacional de Areas Silvestres Protegidas
SNASPE	Sistema Nacional de Áreas Silvestres Protegidas del Estado
UNEP	United Nations Environment Programme

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3. Colombia: Integrated assessment of agricultural trade liberalization
With a focus on the corn sector

3.1 Introduction

The process of agricultural trade liberalization has been taking place at the national level in Colombia since the 1990s. At the time this assessment project began, Colombia was negotiating a Free Trade Agreement (FTA) with the USA. The result of this FTA will influence various aspects of national development over the long term. In response to the FTA, the Colombian Government decided to design the Agricultural Internal Agenda (AIA) as a mechanism to strengthen the rural sector, which was expected to face new challenges from competition. With the AIA, the government expects to make farmers capable of taking advantage of the new and more competitive market conditions.

To implement this assessment project, a National Steering Committee was established. This committee included representatives from the Ministry of Trade, Industry and Tourism; the Ministry of Environment, Housing and Territorial Development; the Ministry of Agriculture and Rural Development; the National Planning Department; and the Humboldt Institute.

The project identified the Agricultural Internal Agenda (AIA) as the target for assessment. The sustainability aspects of the policy were reviewed and analysed in regional workshops with the help of small scale farmers. A stakeholder analysis was also carried out with two tools: a matrix to identify key stakeholders who should be invited, and a matrix to clarify relationships among stakeholders and to differentiate those positively and negatively affected by trade liberalization.

The objective of this project in Colombia was initially to analyse the impact of agricultural trade liberalization on biodiversity and poverty reduction. It was then tightened to focus on the effects of trade liberalization on sustainability of small scale farmers, natural and agricultural biodiversity, and food security, arising from possible structural changes in agriculture/ cattle production. The final step was to feed those conclusions into the AIA.

The project concentrated on the corn sector. The sector was selected because it has a significant share of the small scale farm economy and food security of farmers. Moreover, small scale farmers are historically important for *in situ* corn germoplasma conservation. In addition, corn is a product with expansion potential. It is also an important input to the pork and poultry industry and is sensitive to

trade with the USA as the industry enjoys strong domestic support and subsidies in the North American country.

3.2 Methodological process

The methodology was: (a) selecting the priority sector; (b) defining an inter-institutional coordination mechanism; (c) identifying links between sectors (environment, biodiversity and social); (d) identifying and analysing key aspects of the decision making process and stakeholder groups; (e) determining alternatives through studying trends, threats and opportunities; and (f) participatory workshops and proposal construction.

Top priority sectors and links between the environment, biodiversity and social sectors were identified. A priority exercise based on selected criteria was conducted in consideration of the complexity of the relationships between trade and the agricultural sector, biodiversity and poverty. From this exercise, the assessment then focused on changes in production structures and food security of small scale farmers, with biodiversity as an intersecting issue. Thus, the main research priorities were to identify:

- New pressures on natural ecosystems from agricultural expansion
- Impact of agricultural expansion on small scale farmers
- Changes in traditional production systems
- Impact on agricultural biodiversity conservation
- Impact on food security.

The project used quantitative and qualitative tools to analyse alternatives, trends, threats and opportunities. Existing literature was first reviewed, including studies from the Ministry of Agriculture, private sector, academia and non-governmental organizations (NGOs). Field surveys were carried out in different regions and results put through statistical calculations. To fill gaps in information, qualitative tools were also applied. These included workshops to consult with marginalized and weakly represented groups, using tools such as agriculture-ecological assessments, validation of linkages by perception (mental maps), semi-structured dialogues, timelines, expert input, and Root Causes Trees technique in the rural areas.

Since public participation is a key part of integrated assessment, participatory activities were held and consensus was used to construct proposals. The main goal of public participation was to create mechanisms that allow decision makers to access stakeholders' opinions. National and regional workshops were carried out to collect feedback from small scale corn farmers. Other mechanisms included expert consultation and an online discussion forum.

Finally, the project built a set of proposals based on:

- Recommendations of small farmers
- Discussions with the National Steering Committee
- Expert consultations
- Proceedings from the quantitative analysis and scenarios.

These proposals were presented for consideration to the government team in charge of developing the AIA.

3.3 Corn scenarios

Using the Delphi method, the project scenarios described alternatives of traditional[1] and commercial corn production[2]. Two axes for analysis were determined:

- Speed and modality of corn sector liberalization specified by the FTA. Immediate tariff reduction and elimination of other mechanisms regulating the domestic market is one possible scenario. Another is long term liberalization and staying of other mechanisms regulating the domestic market.

- Implementation/non-implementation of a policy package to help the sector adapt to the new trade conditions (AIA).

Four scenarios in all were built with the two axes of analysis. These took into account tariff and control reductions resulting from the FTA, and the possible roles of the AIA:

- **Scenario A.** The negotiation results in only long term liberalization with no changes in other mechanisms that regulate the domestic market, and the AIA is implemented.

  The corn sector can increase its competitiveness in the long run through sustainable practices. Traditional producers can continue with their economic activity. Commercial producers will be an important source for the national poultry and pork industries. Policies will strive for increase in productivity and sound environmental management, ensuring sustainability.

- **Scenario B.** The negotiation results in immediate tariff reduction and elimination of other mechanisms that regulate the domestic market, and the AIA is implemented.

  The corn sector will require emergency measures and not strategic policies. Shock policies will be required to prevent major social consequences such as rural unemployment, migration and increased poverty.

- **Scenario C.** The negotiation results in immediate tariff reduction and elimination of other mechanisms that regulate the domestic market, and the AIA is not implemented.

  Domestic corn production will not be viable. The result will be highly negative for the sector economically, socially and environmentally. Production will decrease significantly. Unemployment, migration to urban areas, violence and incidence of illegal crops will increase. Despite the reduction in corn growing, which can be seen as positive for the environment, increased pressure on wildlife is predicted. In addition, the decrease in production will threaten the conservation of indigenous varieties of corn.

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[1] Traditional corn production is small scale farming, often done with local seeds. It is mainly used for self consumption and the surplus is sold in the market. Small land owners complement their income by working in commercial agriculture.
[2] Commercial corn production refers to production with modern techniques in larger plots with a hired labour force. This type of production has been identified as having important potential to improve competitiveness as a result of the FTA.

- **Scenario D.** The negotiation results in only long term liberalization with no changes in other mechanisms that regulate the domestic market, and the AIA is not implemented.
  The corn sector is not able to adapt to the change in trade policy despite only gradual tariff and control reductions. The corn production will decrease significantly over time. The effects will be similar to those in *Scenario C* but diluted in time.

These scenarios were contrasted with the exercise made by Ministry of Agriculture and Rural Development (MAGDR), in which the economic effects of FTA on nine agricultural products, including corn, were evaluated. This study built two scenarios of tariff and control reductions. Both revealed unfavourable situations for the corn subsector, and could be said to fall under *Scenario C or D*.

3.4 Key findings

Regardless of the results of the negotiations, the project team felt it was of utmost importance to implement a policy that increased the competitiveness of the corn sector and took into consideration the differences between the commercial and traditional corn sectors. Thus, the AIA is necessary. The content of the AIA, however, should be tailored to the result of the FTA negotiations.

The economic effects of a possible liberalization of the corn sector were assessed by the Ministry of Agriculture in two scenarios (full and partial liberalization). This study, however, did not take into consideration the differences between the traditional and commercial corn sectors. As the traditional sector is less competitive than the commercial sector, the traditional sector will be more heavily affected by increased competition. Domestic production, both commercial and traditional, will be at high risk and will not be able to count on government support to mitigate any of the social, environmental or productive impacts. Imports may soak up all domestic industrial and consumption demand. Areas dedicated to commercial corn cultivation may be abandoned. Maintenance of genetic materials will be put at risk as their use is reduced.

According to the MAGDR study[3], the main economic implications of the FTA with the USA would be, under *M-Scenario 1*, decrease in production of 8 per cent, from 1.117 million tonnes (mt) to 1.026 million tonnes. In an alternative MADR scenario, *M-Scenario 2*, the production fall would be as much as 16 per cent, to a figure as low as 0.940 mt. These reductions would have an impact on employment and labour incomes.

MAGDR results were contrasted with historical data from earlier deregulation periods (1991-1998 and 1998-2004). Comparisons showed that internal prices fell 35 per cent and 20 per cent while prices fell 9 per cent and 17 per cent in the respective periods. In 1991-1998, production volume fell 40 per cent and production area fell 44 per cent, due to falls in traditional production. In 1998-2004, production rose due to *technification* and increased yields in commercial production, but traditional production never recovered. This would imply a new corn sector composed of a proportionately larger commercial subsector had arisen.

[3] L.J. Garay, 2005.

A corn price reduction from the FTA scenarios will benefit the pork and poultry sectors by reducing the cost for the industry. Corn will be increasingly used as balanced animal feed (ABA) if its price falls relative to substitutes. Increase in imports in the period under study can be attributed to increased demand for feed grains from the industry and substitution of domestically produced sorghum.[4]

Because of the tariff reduction leading to lower profitability of corn production, small scale farmers will have to react by becoming more competitive. This will require investments in agrochemicals, seeds and mechanization to achieve higher levels of output per unit of land or labour. Therefore, small scale farmers can only survive through support given to adjust their production systems, or if they take up other crops or activities. Crop switching however will be too complex for small scale farmers on mountain slopes with low fertility soils, where there is no chance of mechanized agriculture. There are also no alternative crops in the short run that can provide alternative sources of income.

There will be a reduction of the size of production areas which will reduce employment and subsequently income of small scale farmers. The figures given by the MAGDR study were income drops from US$12.317 to US$11.182 a day, or 9 per cent in *M-Scenario 1*. In *M-Scenario 2*, the fall is 17.8 per cent. For large producers, income would fall 17 per cent and 30 per cent for the respective scenarios, according to the study.

According to the MAGDR study, implementation of FTA would produce, contrary to official goals to expand corn producing areas, a further reduction of between 9.2 per cent and 17 per cent[5] of the total harvestable area. This reduction would be on top of the recorded fall of 32 per cent of harvestable area during 1990-2004. Traditional corn growing, the most important part of corn production, would be especially affected. In 1990-2004, commercial areas grew 38 per cent, while traditional growing areas shrunk by 41.7 per cent. A maximum of 16.8 per cent of traditional areas converted to commercial systems[6] while the remaining land was not replanted with corn or its use was unknown.[7] It is worth mentioning that during the period 1990-1998 there was a tariff reduction with a variable tax that stabilized the import price of corn, but in the period 1998-2004 during which the commercial subsector expanded, special price support and incentives for *technification* were implemented. These policies effectively increased prices for local producers above import prices and encouraged *technification* and increased yields of corn production. While there was evidence that the shift in policy increased commercial production and improved its competitiveness, no similar effect was observed for the small farmers.

With this initial understanding of economic impacts, the project team concluded that both MAGDR deregulation scenarios, without an AIA implemented, would cause similar serious environmental, social and economic consequences.

From an ecosystem point of view, and according to the linkages hypothesis, the agricultural trade

[4] Sorghum production fell by close to 600,000 tonnes in the same period.
[5] Garay, 2005
[6] Ibid.
[7] Alvaro Balcázar, not dated.

liberalization process has had, and will continue to have, an important impact on land use. Depending on the region, production structure changes have had different impacts on natural ecosystems. One positive impact would be the return of corn growing areas to inactivity, although this had adverse socio-economic consequences. The most important impact, however, was conversion of corn land to cattle grazing land, a spontaneous reaction given the corn production crisis, and which would lead to greater negative impact on the environment.

Some regional changes have also been stimulated by the *technification* policy. A regional analysis of growing areas between 1990 and 2004 showed that some 16.8 per cent of the land devoted to traditional production had been converted to commercial production. This area represented 50 per cent of the increase in commercial growing areas. Where substitution of activity had occurred, farmers had to change their production methods to seek higher yields through agro-chemicals. New pressures were created because there was no sustainable transfer of technology. In other regions, expansion of commercial production had also implied new pressures on natural ecosystems. Converting from the traditional to the commercial system of corn growing remained limited due to: quality and location of land (slopes are not suitable for commercial production and are usually not fertile soils); higher cost of production of commercial corn due partly to the need to buy special seeds; and low adaptability of commercial seeds to the soils resulting in lower than expected yields.

The trend towards increased *technification* was foreseen from the abandonment of traditional practices and the substitution of technology. Commercial processes would lead to progressively more uniform seed use, with long-term implications for harvest vulnerability. The projection showed that this conversion would stop once all corn land had converted to commercial production. Conservation practices associated with traditional knowledge would be necessary to improve production behaviour, promote sustainable use of land, and preserve natural and agricultural biodiversity.

Corn in Colombia is grown from varieties, hybrids and landrace seeds. While the varieties and hybrids are in widespread use, the landrace seeds are used by only a few indigenous and local communities, mainly for their own consumption and local markets. Landrace seeds are not involved in the seed trade and should not be strongly affected by trade liberalization.

Rural employment fell 10 per cent in *M-Scenario 1*. In *M-Scenario 2*, the fall was 21 per cent. Given the inflexibility of rural unemployment, this would affect rural development. Food security, income and days worked would be affected. Corn production for personal consumption based on landrace corn and local varieties would probably increase. Some would be sold in local markets. Nevertheless, the income derived from selling would be constrained by the decrease in commercial practices. Buffer production of diverse corn types could be a partial solution. Small scale farmers were known for their resilience, but would face serious income reduction. As many of these farmers were working on bigger farms part-time, the fall in rural employment would also destroy their complementary source of income.

Meanwhile, traditional corn production would have lost its capacity for environmental sustainability and now threatened agricultural biodiversity.

Landrace corn growing would be especially threatened. These traditional practices appear to be restricted to indigenous communities. Trade and green revolution trends have been identified as the main causes of the decline of such practices. In the context of agricultural biodiversity, a national *technification* policy becomes less sustainable, because it implies less genetic diversity in corn and more dependencies for small scale farmers. Technology transfer occurs mainly among wealthy farmers. Even if small scale farmers reduced the impact on food security by diversifying production, household food access would still diminish due to decreasing farm income.

3.5 Proposals to date for improving competitiveness

One of the options for the corn sector to increase competitiveness is the introduction of Genetically Modified Organisms (GMO), which has inherent risks related to non-differentiated corn imports. At present, 87 per cent of Colombia's corn imports come from the USA. In the last four years[8], only 0.29 per cent has been in the form of flour, while 95 per cent has been grain.[9] The risk of importing grain from the USA is that conventional corn may have been mixed with GMO corn. This represents a threat to landrace corn and local communities whose food security strategy is based on conservation of agricultural biodiversity.

Another consequence of competitive strategy linked to *technification* is a decrease in traditional corn areas. Without clear options, small scale farmers may abandon corn production. As they look for new income they may move to other areas and leave behind their cultural practices. This is one of the most important causes of loss of agricultural biodiversity.

An important factor for competition is the use of certified seeds. Without ignoring the importance of quality and phytosanitary features, it is important to still consider the economic impact on small scale farmers with an increase in the cost of production. On the other hand, it is widely known that the use of hybrids obliges seed purchases for each harvest, which is against farmers' rights.

In the long term, *technification* linked to the use of a narrow range of seeds will create overly uniform genetic resources leading to vulnerability of corn production. Without alternatives for the medium and long term, the pressures on wildlife will grow. Endangered species could be put on the way to extinction as their illegal trade is an option to replace lost farming income.

Taking into account the relationship between lawful and illicit agriculture, the disappearance of corn growing areas on the national level would, in the absence of an appropriate substitute, result in land and manpower being transferred to illicit activities. This is a serious threat for natural ecosystems and can foster violence.

3.6 Proposals and recommendations

The proposals by the project team focused primarily on small scale corn farmers and aimed to create a balanced agricultural policy in terms of competitiveness, food security and agricultural biodiversity. The key factor for producers is to

[8] National Association of Grain and Pulses Producers, 2004.
[9] Ministry of Agriculture and Rural Development. Statistical Yearbook, 2004.

find competitiveness in trade niches and work within sustainable production systems. It entails environmentally friendly features, fair benefit sharing, fair access to food and food genetic resources, conservation and sustainable use of biodiversity, generation of profitable products, and the conservation and protection of traditional knowledge.

This does not exclude the adoption of sustainable commercial systems or other technological alternatives. It does, however, require a resolute government decision to develop alternative proposals that push for diversified production for export and domestic consumption. This strategy can diminish vulnerability caused by overdependence on a small number of exportable products.

Thus these proposals are related to the primary problems identified. There does not exist at the moment a substitution program for small scale farmers, especially those on marginal lands. Small scale farm profitability is dependent on external seeds. There are no programmes for conservation on farms. There are no national trade opportunities for small scale farmers. There is very low capacity for seed quality improvement on farms. There are no alternatives to agriculture in rural areas. There is no known valuation of genetic resource potential. There is little investment in seed research. Traditional and commercial systems are still very far from sustainability.

The main proposals of the project team were:

- Generating a substitution plan for small scale farmers
- Increasing investment in local seeds
- Controlling GMOs
- Adding incentives for small scale farm production with added value
- Capacity building for farm seed development
- Starting a small scale farm program for certified seed production
- Putting in place an instrument for farmers' rights
- Starting farm conservation programmes for small scale farmers
- Giving technological support for conversion to sustainable production systems
- Strengthening sustainable practices
- Developing a genetic resources market
- Starting corn differentiation markets (organic, fair trade and non-GMO strains)
- Giving incentives for certifying environmentally friendly production
- Undertaking research and development for non-food corn uses
- Launching ecotourism and agritourism
- Launching a public campaign for valuation of agricultural biodiversity.

3.7 Conclusions and follow-up

Integrated Assessment is an approach for decision-making that analyses economic, social, and environmental aspects of a problem. Even as an *ex ante* exercise, it does not advocate rigid measures for a policy, plan or programme. Taking into account the planning cycle, the project's conclusions were constructive to improve the Agricultural Internal Agenda and other policy instruments.

From this follows the importance of creating a permanent inter-institutional mechanism to promote national implementation of proposals and conduct in-depth analyses for the construction of future policy instruments. From the Humboldt Institute, there will be an opportunity to interact with public and private stakeholders.

One of the most important weaknesses of the IAP project was lack of information about small scale farmers, food security and biological diversity. In this sense, international cooperation will be welcome to fill these gaps.

Taking into account environmental policy related to implementation of ex ante methodologies, it is crucial to improve all policy and planning processes with strong public participation. In particular, public participation must be strengthened at the local level, with instruments to keep the public informed. In addition, there should be an instrument to measure the influence of the new participatory approaches on the final decision.

To improve the integrated nature of the policymaking and planning processes, it will be necessary to enhance capacity building to fully understand benefits and opportunities from conservation and sustainable use of biodiversity. The Ministry of Environment must participate in the discussions on both specific and cross-cutting issues.

The Ministry of Environment should also participate in all aspects of the methodological process for the Internal Agenda, the aspects of which were sectoral, regional and thematic. It would also be necessary to enhance interdisciplinary collaboration, especially among environmental and biodiversity professionals who make decisions on policies. Finally, inter-institutional collaboration should also be enhanced, with environmental and social institutes consulted during policymaking.

Finally for the UNEP initiative, it is important to keep enhancing capacity for integrated assessments. Institutional arrangements are the key to ensure that integrated assessment is inclusive of all economic, social and environmental dimensions. The project teams should have enough time to engage stakeholders and to generate recommendations in an *ex ante* process. Government representatives should also be involved in the discussions rather than merely attending the final presentations and appropriating its findings.

3.8 Abbreviations and acronyms

DNP	National Planning Department
FTA	Free trade agreement
GMO	Genetically modified organisms
AIA	Agricultural Internal Agenda
IA	Internal Agenda
IAP	Integrated assessment and planning
MARD	Ministry of Agriculture and Rural Development
NGO	Non-governmental organization
SAFP	Andean System Price Band
UNEP	United Nations Environment Programme

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4. Czech Republic: Integrated assessment of the ways in which National Development Plans are evaluated

4.1 Introduction

The Czech project was implemented by the Regional Environmental Centre - Czech Republic (REC-CR) in cooperation with a team of experts from November 2004 to November 2005. Based on consultations with UNEP, a draft project concept was developed focusing on building a common integrated assessment framework that could be applied to future EU programming documents for both the Czech Republic and other new EU member states. The Ministry for Regional Development (MRD) and the Ministry of Environment (MoE) were the official partners and supervisors of the project.

The Czech project was unique in that it was an "assessment of an assessment". It was designed to assess: (a) the *ex ante* socio-economic evaluation; and (b) Strategic Environmental Assessment (SEA) previously performed on the country's National Development Plan (NDP) for 2004-2006. The findings from this project were expected to be useful for integrating both procedures when evaluating the new NDP of 2007-2013. The project team, therefore, focused more on processes and procedural aspects rather than the content of the NDP. The key objectives of the project in the first stage were:

- To evaluate the previous *ex ante* socio-economic and environmental assessments, and examine

  their relationships and inputs into the NDP planning process and stakeholder consultations.

- To suggest a common integrated assessment framework that could be applied in future programming documents for EU Structural Funds, whether in the Czech Republic or in other new EU member states.

- To revise the NDP planning and assessment processes, including fine-tuning the existing legal, institutional and methodological frameworks, by taking into account key lessons learned.

The second stage of this project was to draft recommendations for procedures and methods to be applied when assessing sustainable development in strategic documents, with a specific emphasis on future NDPs.

4.2 Key processes

Implementation was based on the following

processes: surveying opinions of main actors involved in assessing the NDP, reviewing relevant documents, brainstorming and discussions among members of the project team, and consulting with representatives from stakeholders groups (academics, private sector representatives, government officials and NGOs).

Major milestones could be summarized as:

- A core team of experts in strategic planning, environmental assessment, socio-economic issues, sustainable development and public participation was formed. There were consultations with MRD and MoE to present and discuss project objectives and expected outcomes.

- For the purpose of this project, members of the project team who had been involved with the previous SEA for NDP 2004-2006 were tasked to analyse both socio-economic and environmental impacts, as well as their experiences with public consultation. Documents of both assessments and NDP were collected and analysed.

- Key findings were presented and discussed during the introductory workshop, which took place in Prague of the Czech Republic, in November 2004.

- A special web page on project outcomes and results was set up at http://www.reccr.cz/projektys/sea/sia_unep/uvod.html.

- A second public workshop was organized in March 2005. Participants came from MRD, MoE, Ministry of Industry and Trade, Institute for Territorial Development, Czech-Invest, and private consultancies such as City Plan and DHV.

- The project team conducted a number of working sessions. The earliest meeting brainstorm and discussed key elements of the planning process, the role of assessments, ways to address sustainability issues, and the relationships between various aspects of sustainable development. Follow-up meetings designed a model of planning and assessment processes for the new NDP.

- A draft strategy for public involvement and stakeholder consultations was developed.

- A meeting of the project steering committee took place in April 2005. The meeting summarized the current state of project implementation and concluded the following:
  There should be a recommendation, included in the terms of reference for the socio-economic and SEA assessment teams, to take heed of this project's findings when assessing the new NDP.
  There was a need to invite the two assessment teams to discuss the methodology to be followed and proposed key sustainable development themes to be included.

- A proposal for a methodological background was adopted. This was reflected in a subsequent revision to the process model.

- The final review workshop took place in June 2005 in Prague. It presented methodological approaches for the assessment process and discussed current expectations, needs and a "feasibility framework" (involving experience, political commitment, data availability, time and financial resources) needed to integrate the country's strategic planning and decision making.

- Following the public presentation, the project team continued to construct proposals to be used in integrated assessment.

- Final results and recommendations were summarized and presented at the mid-term review meeting in Geneva in September 2005.

- Subsequently, a statistical modelling exercise applying the proposed methodology to the draft NDP was conducted in November 2005.

A crucial element during the project implementation was the active involvement of MRD and MoE. At the later stages of the project, when the initial recommendations had been drafted, interest was shown by the Czech Council for Sustainable Development, which had been formed by the Czech government. The Council handled the development of methodologies for sustainability assessment. This study was seen as an important input to its planned work for 2006 and beyond. A government representative at the final workshop confirmed that this integrated assessment project should be used as a guide by the Council.

The project had received special support from the Department of Strategies of MoE. Representatives of the Ministry provided perspectives on the procedural aspects of the proposed assessment model and facilitated communications with the Council for Sustainable Development. MRD meanwhile provided feedback on EU requirements and partially incorporated the recommendations from this study into the terms of reference for the SEA of the new NDP 2007-2013.

The preparation and assessment of the new draft NDP started in late spring 2005. Some members of the project team were directly involved in the SEA of this new Plan, where they presented findings and recommendations from this IAP project, and initiated discussion on sustainable development and its integration into national development.

4.3 Findings

4.3.1 Critique of previous evaluation processes

The NDP 2004-2006 was, in accordance with EU regulations, subject to two parallel evaluations: (a) a socio-economic evaluation; and (b) an environmental evaluation (SEA), both *ex ante*. The integrated assessment carried out in this project showed variances and gaps between these two sets of evaluations and within the NDP planning process itself. Special attention was paid to the issue of sustainability using UNEP's draft sustainability framework as a tool. Key topics and issues that needed improvement or further development were identified.

Both evaluations contributed to several stages of the NDP elaboration. Given the time constraints and the lack of coordination between the planning stage and the two subsequent and parallel evaluations, however, the desired approach of coordination between the two evaluation teams and with the planners was not taken up.

The second critical point identified by this project was the incompatibility of the evaluation approaches used. The SEA was coordinated by MoE and benefited from legislation and methodology that (partially) existed in the Czech Republic. The socio-economic evaluation, however, had not yet been legislated and the team responsible could

use only guiding documents developed by the EU. The two teams thus followed different principles and applied different methodological approaches towards evaluation.

The analysis of the NDP consultation process could be summarized as the following:

- Late involvement of the public and very limited time and space to contribute input.
- Absence of a clear schedule of activities connected with NDP preparation and evaluations.
- Unclear responsibility for processing public comments and integrating them into the NDP.
- Absence of a coordinator and a budget to organize consultations with the public and difficulties in identifying stakeholder groups.
- Lack of mechanisms to set mandates for representatives from stakeholder groups.

Of the preparation of the NDP itself, only limited practical experience was available, including knowledge of tools and methods such as SWOT (strengths, weaknesses, opportunities, and threats) analysis. Communication skills and information sharing were also poor for a complex planning process involving many parties.

4.3.2 Sustainable development as the government's priority

The debate on sustainable development in the Czech Republic is still limited, irregular and informal, mostly focusing on the development of the National Strategy of Sustainable Development. Following a revision, experts also observed that the Strategy had become a political declaration rather than a practical action plan with clear objectives, targets, timelines and responsibilities. As such, it had very limited use as a reference document.
This integrated assessment project was, therefore, the first platform to discuss the integration of sustainable development into strategic planning and decision making in the country. The project generated additional benefits in terms of capacity built as well as identification of potential stakeholders in this kind of assessment. At the same time the limitations and difficulties in undertaking integrated assessment were acknowledged.

4.3.3 Integrated sustainability assessment

The analytical work, workshops and the roundtables organized for the SEA pointed to a common problem, which was the lack of formal procedures for social and economic assessments. This problem had a crucial influence on policy integration. Planners did not have sufficient motivation to discover how priority developmental issues could be affected by a new plan, measure or activity. Planners also had a tendency to regard the three pillars of sustainable development separately and analyse them in isolation. They tended to view environmental protection as a constraint on economic and social development.

Up till today in the Czech Republic, socio-economic evaluations are carried out only for programming documents related to EU structural assistance and for streamlining the priorities of existing plans. No guides for this assessment are available in the country because there is no legislation requiring it. The EU is increasingly imposing requirements on sustainable

development, but methodologies and guidelines for practical application are still lacking. It is also unclear how the EU itself understands the term sustainable development. At public workshops, safety has also been recommended as a new and separate pillar of sustainable development.

4.3.4 Assessment methods

To a limited extent, macroeconomic models in NDP planning and evaluation were used. On modelling, feedback from the workshops pointed out that quantitative analysis was difficult and unreliable as causal links were missing or under-described, adequate data was lacking, and unforeseen developments had disrupted trends and patterns. While better models and data might be available in the future, current time and resource limitations meant that the expert judgments were taken to yield predictions of the same quality as modelling.

Another critical point was the definition of sustainable development. Sustainability assessments should not be treated as a mechanical ticking of standardized check-lists that did not consider the objectives and concerns of the assessed document. Academic representatives pointed out that for the purpose of assessment, there was always a necessity to define and declare a desired level or desired model of sustainability. This was argued as the only way to eliminate future misunderstanding.

4.4 Recommendations

Recommendations at the second phase of the project focused on the procedural and substantive frameworks for integrated assessment of the NDP. The assessment framework would be to deal with two principal issues: (a) how to address social and economic issues given the lack of procedures and methods; and (b) how to examine economic, social and environmental issues in an integrated way. The main points were:

4.4.1 Procedural integration

A number of discussions took place on how to achieve policy integration through procedural integration. A basic model was recommended using a step-by-step process of assessing individual components of the NDP with consultations. The model was eventually based on SEA procedures with improvements. It had the basic assumption that integrated assessment can be, from the procedural point of view, undertaken by incorporating socio-economic evaluations and SEA. Evaluations could be carried out within each stage of the NDP preparation and the findings presented before the planning finalized. A key contribution of this model was mutual hearing by the evaluation teams of each other's concerns and recommendations.

4.4.2 Cluster analysis

Sustainability is only ensured when problems are treated holistically and through compromise between often antagonistic goals. The methodological problem in planning and integrated assessment is how to define economic, social and environmental priorities. The current unsophisticated analytical structure makes detailed analysis problematic. It is, therefore, necessary to refer to a sustainability reference framework and use cluster analysis.

The team proposed and tested cluster analysis to address the trade-offs of the numerous objectives. This method was based on the aggregation of experts' evaluation (or scoring) of the relevance to sustainability of the individual measures proposed in the NDP. The relationships between these measures were then examined with a view to obtaining best sustainability trade-offs.

It was necessary to first create a sustainability reference framework and classify dozens of measures into smaller numbers of clusters. The general reference framework, independent from the assessed document, enabled the experts to make an exogenous appraisal of the individual priorities or measures and leave out measures of low or zero relevance.

A second major step was to examine interactions between the individual measures according to their locations in the structure of the new clusters. The critical relations and conflicts within every cluster must first be identified. Then it was possible to examine relationships between clusters. Based on their linkages or non-linkages, certain measures that did not seem to influence each other could be eliminated.

Finally, integrated assessment could be carried out by examining the most relevant relationships. During the project, it was found that most of the NDP measures and clusters had significant links to sustainable development. However, some measures needed to be more precisely defined or reinforced with conditions for implementation. Clustering can be one way to highlight measures with strong relevance to global sustainability issues.

4.4.3 Public involvement

The recommendations to improve the public consultation process for assessments of sustainable or development issues were:

1. Compile a detailed plan for consultations well in advance, specifying organizations, groups and individuals. Describe how consultations will be related to the preparation of the NDP and its evaluations. Specify consultative techniques, individual responsibilities, and schedule.

2. Analyse and map stakeholder groups, and suggest ways of getting the key participants involved.

3. Determine different participation levels and suitable techniques for consultations at each level. Suggest ways to implement the partnership principle for integrated assessment of the NDP, such as selecting representatives from stakeholder groups. Time the consultations to see which phases of NDP preparation would best suit each group's participation.

4.5 Conclusions

This project was the first of its kind in the Czech Republic to initiate discussion among experts from a wide spectrum, including economists, environmentalists, and specialists in the area of social issues. It was also the first time it was shown that tools for sustainability assessment were inadequate, a situation found in that of the SEA.

The specific objectives of the project were generally met, although there was still work to be done, including the launch of assessment for the NDP being prepared for 2007-2013. Currently, there is a tendency to view integrated assessment in the context of SEA only. This is undesirable given that sustainable development should cover all three pillars of economic, social and environmental, but is understandable given that the main methods on known processes applied in SEA.

For practical implementation of integrated assessment, its methods must be developed and tested. Institutional and operational aspects must be dealt with. One of the issues was that strategic

assessment of social and economic impacts was not legally required. The methods developed by researchers and the simpler tools needed by practitioners was also a contradiction that must be resolved.

Based on the conclusions of this project, a position paper should be prepared outlining a strategy to further develop the national legal and methodological frameworks for integrated assessment. This work should benefit from cooperation with the Ministry of Environment. Such a paper should be submitted for consideration to the Government Council for Sustainable Development.

Discussion should continue among different teams of assessors so that they can share methods and understand limitations. A crucial limitation for this project was the lack of definition of economic and social objectives and the necessity to treat these objectives in the same way as under the environmental assessments.

Also, an intense and well-organized discussion involving planners should take place to address the cross-sectoral topics derived from cluster analysis. This can help resolve trade-offs among different sectors. Other parties, such as the different Ministries, should be involved.

The integrated assessment approach can also be applied in the regional context, such as in the Liberac region, where simple appraisal techniques are already available to evaluate economic, social and environmental impacts of proposed regional development projects.

4.6 Abbreviations and acronyms

EU	European Union
DHV CR	Private consultancy firm
IAP	Integrated assessment and planning
NDP	National Development Plan
REC-CR	Regional Environmental Centre - Czech Republic
SEA	Strategic Environmental Assessment
UNEP	United Nations Environment Programme

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5. Indonesia: Integrated assessment of the Poverty Reduction Strategy Paper

With a case study on sustainable fishery initiatives

5.1 Introduction

In 2003, UNEP invited the Government of Indonesia to participate in Integrated Assessment and Planning (IAP) for a priority public policy. The Indonesian National Planning Development Agency (BAPPENAS) identified the Poverty Reduction Strategy Paper (PRSP) 2005-2015 to be the subject for such an assessment. The PRSP was selected because the Indonesian National Development Planning Document (PROPENAS) 2000-2004 included poverty reduction as one of its top priorities along with mainstreaming of sustainable development principles. Given such a priority, the government then looked to formulate a comprehensive long-term strategy in the form of the PRSP. By targeting the PRSP for integrated assessment, BAPPENAS hoped that the strategy paper would integrate environmental and natural resource considerations.

However, it became clear that it would be difficult to apply a complete assessment of the PRSP primarily because it was already in the final stages of preparation by the time integrated assessment began. A local-level case study was selected to augment the general assessment. The objective of the case study was to illustrate how the IAP approach could feed into the local-level PRSP processes as well as at the national level. The case study described a successful local initiative directed at transforming destructive fishing practices in Les Village, Bali.

The overall aim of the project was to facilitate discussion among major stakeholders on integrating environmental issues with poverty reduction efforts. The targeted audience included the Government of Indonesia at both national and local levels, local communities, NGOS, civil society and development partners.

5.2 PRSP assessment

5.2.1 Poverty and poverty reduction efforts

Between 1970 and 1997, Indonesia achieved an average economic growth of 5 per cent and reduced its poverty from 40 per cent to about 11 per cent of the population. During the financial crisis in 1997, however, the poverty level jumped to almost a quarter

of Indonesians at 24.2 per cent. This indicated the vulnerability of much of the population nominally above the poverty level. Most of the Indonesian poor live in rural areas, with agriculture as their main source of livelihood. The Government of Indonesia had taken several measures to reduce the numbers of the poor. All the programmes aimed to strengthen rural-urban economic linkages. However, there was growing concern that the previous poverty efforts, policies and programmes had been unable to reach expected outcomes. Many believed it was due to worsening environmental conditions and diminishing natural resources, which should have warranted changes in the pattern of production and consumption, but were not taken into account. An evaluation of past poverty reduction efforts by the IAP team found that:

- Programmes directed at poor people were of two types: programmes carried out by sectoral agencies such as the health and education ministries; and special programmes that were multi-sectoral and regional/national in scale.

- Policies considered only one aspect of poverty reduction, i.e. household consumption. Such an approach did not fully comprehend the multi-dimensional problems faced by the poor and missed out on the root causes of poverty.

- Poverty reduction programmes and policies were not process-oriented. There was a lack of participation by stakeholders. In this case the most important stakeholders were the poor themselves, but they were not consulted in programme planning, development, implementation and monitoring. As a result, ownership was low for the programmes and projects.

- There were minimal coordination and linkages amongst programmes. For example, the links between poverty and the state of the environment were not examined.

5.2.2 Assessing the first draft of PRSP (May 2004)

Indonesia's PRSP, developed by the Poverty Reduction Committee (Komite *Penanggulangan Kemiskinan* or KPK) was a good response to the problems facing poverty reduction efforts in Indonesia, the project team found. The objectives of the PRSP were:

- Providing guidelines for the government, private sector and community as development stakeholders, at the central as well as regional levels.

- Implementing a new paradigm in poverty reduction, i.e. participatory approach through consensus and commitment from related parties, beginning right from the strategy and policy formulation process.

- Showing Indonesia's commitment to the global poverty reduction movement.

The IAP assessment showed that, in general, key authorities at both central and local levels were informed of the drafting process of the PRSP. Representatives of key stakeholders were also widely informed of the process. The planning was transparent and the key elements were laid out in an interim PRSP document that was widely circulated at the central level. Furthermore, brochures related to the PRSP were also circulated. Meanwhile, consultative meetings were held several times at the central and regional levels and a website of the

activity was put up. Key authorities and stakeholders were thus given a channel to participate, both formally and informally, in the process.

Several evaluation exercises were also specially commissioned to inform the PRSP process, including a review of several important and recent participatory poverty assessments (PPAs), a participatory poverty mapping, and a study on land tenure issues. Of these, the PPAs were seen as a proxy mechanism for "voices of the poor". Their findings were incorporated into the PRSP process to reflect the interests of the poor and various dimensions of poverty, and as such, the PRSP was expected to reveal new notable aspects, such as marginalization.

A systematic assessment of environmental aspects of poverty reduction strategies had never been done in Indonesia at the national level before the PRSP. The development of poverty reduction strategies had traditionally been the responsibility of the stakeholders within the "welfare sectors", i.e. health, education and public works. During the process of this PRSP development, the inclusion of the wider stakeholders such as environmental NGOs, gender groups and other sectoral agencies made its scope much broader than other previous poverty reduction strategies.

Despite the above strengths, weaknesses and gaps were also identified by the IAP team, especially in the policy planning and development process. For example, while stakeholder input was collected, the process by which it was incorporated was not clear. Also, during development of the PRSP, dialogue was not geared towards understanding how stakeholders could have different roles in PRSP or contribute to the process. Stakeholders were, therefore, confused about how the PRSP would be beneficial to their own agenda or guide their own strategies. By the finalization stage of the PRSP itself, the designation of roles had become an arbitrary decision. Regional stakeholders were even less clear of what was expected of them.

A related weakness in the environmental dimension was that the PRSP drafting team did not have anyone with an environmental background. It was, therefore, difficult for the PRSP team to truly integrate recommendations that were "environmental" in nature. When environmental recommendations were sought, the team requested the information come in the form of a written "end-product" that could be easily added to the text but not integrated.

Although efforts were made to inform and involve key authorities and stakeholders, participation was also lacking from Ministries that had small poverty-reduction portfolios (so-called "technical" ministries), notably the agriculture, forestry, marine affairs and fisheries, mining and energy, and environment Ministries. Additionally, it was not clear how Ministries concerned with industry, trade and finance could be involved in the substantive aspects. The strategic planning document would, therefore, most likely fail to secure commitment from these important institutions.

Finally, although efforts were made to seek the involvement of NGOs and others working directly with the poor and marginalized groups, they were represented only mostly by proxy (i.e. by results from studies). Outreach to the general public was also limited.

Based on the examination of the draft of the PRSP document, the IAP team argued that only key social and economic sustainability issues (such as the

distributive impact of development strategies) were identified. There was, in contrast, little mention of the principles related to sustainable management of the environment and the use of natural resources. Key environmental trends and statuses were not recognized and explicitly stated except for issues related to access to land. The spatial and temporal aspects of resource depletion were not addressed either, a situation that could lead to inappropriate targeting and sequencing of poverty reduction efforts. Additionally, economic strategies dominated poverty alleviation efforts, which could lead to increased pressure on the environment. Some further observations from the IAP team were that the first draft of PRSP:

- Did not address the trade-offs among the various sectoral priorities and needs, some of which were not necessarily oriented toward the poor. Additionally, procedures for defining activities and priorities were not so much non-transparent as non-existent.

- Lacked real mechanisms to integrate environmental and natural resource dimensions into PRSP. To be sure, the document's accommodation of a specific section on the environment and natural resources did present an opportunity for sustainability principles. Due to the lack of wider participation of the most relevant authorities and stakeholders in this field, however, any recommended strategy, programme or action was likely to generate criticism and even non-compliance.

- Lacked delegation of authority and division of labour during implementation. It was not clear which agencies would be responsible for implementing the strategy and how the wider public could use the PRSP document. In spite of the lack of key participation from the Ministries, the PRSP still sought to prescribe measures for them, which could create an uncertain response.

- Did not clearly delineate how the strategy would build on previous and current poverty reduction strategies. Planned actions were simply crafted around each Ministry's existing poverty reduction programmes, which might not have been the most useful of programmes. For example, instead of emphasizing an economic assistance programme for poor coastal inhabitants by the Ministry of Marine Affairs and Fisheries, the action plan took a closer look at the more strategic aspect, that of continuous expansion of the fishery given the diminishing stock. The pro-poor stance of the PRSP should have provided an opportunity for a critical evaluation of such assistance plans.

5.2.3 Assessing the revised draft of PRSP (September 2004)

Realizing the scale of criticisms directed at the first draft of the PRSP and the limited time available to address the weaknesses, the Government decided to delay finalization and change the agency responsible for drafting it. The PRSP timeline was extended to the end of September 2004, and the ownership shifted to BAPPENAS under the Directorate for Sectoral and Regional Development Cooperation. Under the new plan, the BAPPENAS-led team was responsible for integrating the PRSP into the President's yearly report to the Parliament, and ultimately into the national short-term and long-term planning documents. New staff were assigned to a drafting team mandated to come up with the final version. In this case, the new team determined that a different framework would be needed for the PRSP and later devised a new rights-based approach.

To accommodate this new approach, a complete revamp of the previous draft was warranted and what became most conspicuous was the deliberate shifting of the economic focus of the document.

The rights-based approach would allow for this shifting towards the social aspects of poverty reduction. The previous four pillars strategy was re-defined and expanded to feature five pillars. A new format was constructed whereby the problem of poverty is examined through various states of basic needs and rights deprivation. Within this framework, the issue of environmental and natural resource management was addressed. In addition, the new team came up with a more comprehensive format for the formulation of action plans. The new format involved breaking the actions down year by year, supported by indications of regulatory, facilitation, and funding requirements. The articulation of roles was also provided in the new format.

The IAP team considered this shifting of gears an opportunity to continue influencing the process. However, given the limited time and scope of the PRSP extension, the team was realistic in prioritizing its recommendations. The team's approach thus relied on the results from previous sectoral policy and programme evaluations and priorities already indicated in existing sectoral policies and programmes for poverty reduction. The team contributed three distinct messages to the formulation of the final PRSP document:

- Rapid natural resource depletion and environmental degradation are currently undergoing in Indonesia, impacting the poor most severely. Macroeconomic policies and poverty reduction strategies, therefore, should not lead to a situation of "business as usual" since further environmental degradation will hurt the poor and increase poverty. Rather, environmental rehabilitation and protection should be integrated in any poverty reduction strategy.

- The strategy must implement a pro-poor stance in natural resource and environmental management, to ensure the rights of the poor and their access to social and economic capital.

- It is important for national poverty strategies to learn from site-level models that demonstrate successful integration of economic, social, and environmental considerations in poverty reduction efforts.

5.3 PRSP conclusions

1. Integrating sustainable development principles, and especially environmental sustainability considerations, and poverty reduction is very difficult since many of the linkages between environmental, social and economic spheres are still in early stages of research and therefore not readily available for programming and action planning purposes.

2. The importance of involving sectoral agencies cannot be understated since many environmental sustainability principles have to be adopted by them. To make the effort manageable, key sectors must be identified to facilitate maximum impact on poverty reduction. A look into the poverty profile of a region or nation should be enough to provide indications of the key sectors.

3. The guiding questions and tools developed for the IAP approach were useful for comprehensive planning and formulation of strategies. The challenge for the Indonesia project was to

encourage their widespread use when the PRSP planning process was approaching the final stages.

4. There is great interest on the part of the local governments to make local poverty reduction strategies. Several local governments (about one in ten) in Indonesia are in various stages of developing their own PRSPs. Expectations were that there are several models in development, including: PRSPs initiated by local governments and facilitated by agencies such as international donors or university groups; PRSPs initiated by donors or other agencies; and made-to-order PRSP documents written by local consultants and funded by local governments. The IAP will be especially useful to those local governments that earnestly desire a hands-on approach to PRSP development.

5. The IAP project also exposed the constant problem of data availability. The linkages between poverty reduction and environmental quality need to be substantiated with data that show the benefits of environmental services to the poor and the distribution of benefits due to current development activities (infrastructure building or fostering of a certain industry, for example). Such data is not readily available.

6. Many groups have an interest in the content of the PRSP so sustainability must compete with other issues such as gender equality, regional autonomy and pro-poor budgeting. An effort to integrate sustainability concerns into other issues may not be always workable since each lobby group will usually have developed its own priorities and it will not be practical for an IAP team to be involved in many groups.

7. It is clear that the environment was "mainstreamed" into the PRSP formulation process. In this respect, the goals of the project, which are to enhance understanding of the linkages between trade, environment and poverty alleviation; enhance national institutional and human capacities for undertaking strategic integrated assessment and planning for sustainable development; enhance national coordination among the government institutions involved in the project; and enhance capability of policy-makers to design and implement comprehensive policies and measures for sustainable development, have been met.

8. PRSP was a moving target, which was started much in advance of the IAP. It experienced shifting focus, lack of environmental expertise, and failure to engage the technical sector (forestry, fishery, and mining and energy, for example). Understanding of sustainable development principles also widely varied among stakeholders. Although IAP guidelines were useful in evaluating the PRSP in a systematic manner, project teams in the future will need to ensure adequate understanding of the substance and process of the policy to which IAP is applied. The PRSP was not a suitable target, it was later found, as it meant "entering the fray" at the final stages of its development. In addition, the case study which follows lacked clearly defined objectives and was not therefore of the quality expected. However, the IAP team found the project highly useful in exploring the local linkages between poverty and sustainability issues.

At the time of writing, the IAP team was developing a guideline document as part of a series

of "how to" documents outlining the process of developing a local PRSP. This guideline document would be provided to local government agencies following a workshop to review the final document. There would also be a process to refine and finalize the guidelines through small discussion groups and email networking. In addition, the IAP team planned to conduct integrated assessments of local PRSPs with Bahtera Nusantara and Minabakti Soansari groups when funding permitted.

5.4 Sustainable fisheries initiative in Bali – a case study

5.4.1 Introduction

The purpose of this case study was to showcase the IAP approach and to influence local-level as well as national-level PRSP revisions in the future. The Buleleng Regency was chosen for the case study on the basis of the following criteria: receptiveness of the local government to integrated assessment, their interest in preparing a local poverty reduction strategy paper *(SDPK)*, a high incidence of poverty, and environmental and international trade relevance. Within the Buleleng Regency, Les Village in the Tejakula subdistrict was the focus of the case study. An integrated poverty reduction strategy implemented by this village over the last ten years was the subject of the assessment.

5.4.2 An integrated initiative

The Bahtera Nusantara Foundation (Bahtera) first introduced to the fishers of Les Village in 2001 the idea of using nets to catch ornamental fish. Prior to doing so, Bahtera conducted an investigative assessment of destructive fishing practices in all of the coastal villages in Bali, followed by a mapping of the condition of the coral reef. Data showed that destructive fishing practices were prevalent in almost all near-shore reef ecosystems in Bali, including many sites on the northern coast. Not only was this causing a major decline in the reef ecosystem that fishers depend upon, the practice was threatening the tourism industry as well. Bahtera resolved to implement a programme at Les Village with the objective of transforming the way fish was caught and distribute the benefits between fishers and exporters more equitably. By the end of 2002, almost all of ornamental fishers in Les Village had stopped using cyanide and switched to nets instead. They demonstrated that using nets did not reduce the total number of fish caught, but fishers were able to catch all varieties of fish, even the most difficult to net.

5.4.3 Business model

Bahtera then formed a limited liability company with the purpose of exporting ornamental fish directly. In this way, the fishers would be able to reap full benefits of their labour. The company was named PT Bahtera Lestari and its owners are the ornamental fisher group Mina Bakti Soansari, the *adat* village, the administrative village[1], the local village businessmen, and Bahtera itself. The main activity of the company is supplying ornamental fish, with additional activities in community-based nature tourism and consultancy in the management of coastal and reef ecosystems. In 2005, the Mina Bakti Soansari group had 98 members. The aims of the group were to increase the price of ornamentals for the fishers, improve the welfare of fishers, strengthen the legitimacy of fishing

[1] In Bali, the village is defined in two ways. The *adat* village is the traditional grouping of villagers bournd by family and locality, whereas the administrative viallage is a governmental division for the purpose of public administration.

for ornamentals, and protect the coral reef of the village. The business was careful to take advantage of local advantages such as a coastal site with an interesting reef formation located in Bali, and human resources skilled at catching ornamental fish and knowledgeable about the reef ecosystem. In this way, the fishery reform at Les Village was concerned with not just with changing the method of resource extraction, but the whole business model.

However, one thing had been particularly elusive so far, which was raising the price of ornamental fish for the fishers. So far the group had identified a need for more widespread awareness on the part of the collectors and hobbyists about the quality of fish, especially to look out for ornamental fish not caught by cyanide or potassium. It was felt that only with higher appreciation for quality on the part of the buyers would the new method of catching fish translate into higher prices for fishers. Such appreciation will most certainly need to be built by an international campaign, which makes it an enormous task beyond one organization, especially a small one such as Bahtera or even Les fisherman group.

The people involved in the initiative were mostly local NGO staff and ornamental fishers themselves. Other people assisted the programme, some on a *pro bono* basis (as volunteers), such as professional divers who taught fishers safer diving methods. Other environmental activists (mostly those who worked in the area of coastal conservation) also provided administrative and technical assistance. As the intervention became better known, people from Central Government started paying attention and government officials started to visit the area, some providing access to financing and additional technical assistance.

5.4.4 Assessment

Assessing the potential impact of the initiative was not easy since there was a wide gap in ecological and socio-economic baseline data needed. To describe what the expansion of the initiative would look like at the district and regency level, the IAP team used available secondary and primary data, and if the data was not available for the area in question, the team searched for data and estimates from other similar sites (through the benefit transfer approach).

It was estimated by Bahtera that if the size of coral cover in Buleleng Regency (19.4 km^2) improved into fair condition, given the estimated sustainable yield of between 15-20 tonnes/km^2/year from a reef in such a condition, the sustainable harvest of reef fish in Buleleng should be about 291-388 tonnes/ year, much higher than current yields of 43.8 tonnes (6-9 times higher, in fact). Also, the types of fish more closely dependant on the coral reef ecosystem and were therefore more likely to be found at a reef in fair condition. Examples such as grouper and squid were higher in value, estimated at US$1,500/ tonne and US$2,000/tonne respectively, compared to the total average value of US$629/tonne for 2004's total production. Given the price per tonne and average yields of 15-20 tonne/ km^2/year for a fair condition reef, the value of the annual catch is US$22,500-US$40,000 per km^2 per year.

This site-model analysis predicted that a better quality of reef ecosystem contributes to both higher total yields in terms of volume and value, as well as higher average unit value of yields. Spill-over gains (i.e. improved yields seen also in non-reef fisheries) were also expected. Sustainable harvesting methods would also improve the social standing of ornamental fishers by changing their image as law breakers, and enhance their capacity as role models and fisher-consultants, though these impacts were

less quantifiable. For instance former cyanide fishers such as those in Les Village had reported that the psychological burden and the social stigma of being law-breakers could be heavy.

5.4.5 Findings

Although Les Village provided an example of how trade and poverty reduction can benefit from improved resource management, local development plans did not usually take this into consideration. Some reasons for the lack of local government involvement were:

1. Local government staff did not keep up with the latest information in their technical field, or in this case, fisheries. Even if they did, it was overwhelmingly concentrated on aquaculture issues, rather than aspects of wild fish capture and management.

2. Some staff did not have the relevant technical background or the competence that would be useful for this particular intervention.

3. Local government did not see any benefits to be had from the intervention. They remained passive. They were pleased if efforts by NGOs could become a success, but would not take the blame if they fail.

4. Lack of competence was a factor, since there did not seem to be a role they could play to add value.

5. Local government staff did not sufficiently take into account technical expertise or experience when placing people in various positions. Thus the staff of the local fisheries service, for example, could not offer much in terms of technical assistance because they themselves lacked expertise.

The success of this initiative also had to do with Bali's strong link to traditional keepers of law (the *pecalang*). The *pecalang* conduct monitoring and patrolling to uphold most laws in a cost effective way. The pecalang was involved in all major events in Bali, including supporting the security system against potential terrorists, safeguarding elections, and patrolling around marine conservation areas. Support from the police and the justice system, especially involving trespass by non-Balinese is still needed, but the key to effective and non-costly law enforcement in Bali is the adoption of laws into the traditional system. This involves the support of local villagers. When cyanide fishers abounded, it was difficult to achieve this but in the case of Les Village, since the fishers themselves were committed to sustainable fishing, the rest of the villagers supported them.

There were other insightful lessons from the case study of Les Village, which can provide valuable input into the development of other initiatives, including:

- There is a need to simplify the facilitation and management of natural resources by the community.

- Capacity building is needed to manage resources effectively.

- Central and local government policies and regulations must protect communities' access to resources and must be implemented in a consistent manner.

- Communities need marketing support.

- Division of labour amongst the government, non-governmental organizations and the private sector can be effective to manage natural resources.

After the success of this project, the logical next step was to expand and/or duplicate the initiative. Given the immediate need to reduce cyanide use, the critical components of a scaled-up project are:

- Expansion of sustainable harvesting system
- Transformation of the business model
- Implementation of a reef rehabilitation scheme
- Government-sponsored capacity building, research and development.

5.5 Case study conclusions and recommendations

The Les Village achieved transformation without the involvement of the Government, either central or local. However, the IAP team concurred that a scaled-up initiative (see Table 1) would benefit from official help, from the local government in particular. The extent of the expertise needed should be determined with industry players (fishermen, NGOs facilitating them, middlemen, exporters and retailers) but one governmental specialist in ornamental fishery at regency level may be necessary. The responsibilities of this expert include data collection of ornamental fishery (including catch volume, composition, cycle, marketing chain and the socio-economic aspects of the industry), duties in advocacy and a role as an intermediary with law enforcement personnel. This specialist may be a civil service staff of Buleleng Fishery Service or Environmental Management Service.

Other roles the government could play include research and development (R&D) in ornamental fishing technology and/or equipment. The alternative technique to using cyanide was by using a combination of barrier net and scoop, but research may indicate that other methods are just as effective. Additionally, the nets required to implement the barrier and scoop method were expensive since they had to be imported. An alternative focus of R&D can include packaging, transporting and equipment. The IAP team also concluded:

1. Site-specific interventions often worked much better than macro solutions since they could be adapted to local situations. While there was some efficiency in implementing large-scale programmes, it had been demonstrated that modifications were needed, and there was a high risk of failure. Site-specific interventions relying on local initiative can work and be cost-effective.

2. The conventional wisdom of a central-led (or macro) solution has led to the development of talent at the central or headquarters of an organization (governmental or non-governmental). Site-level solutions mean that local offices also need strong technical expertise, especially in areas where the locality has particular problems. For the case of Buleleng Regency, given that it was a coastal area that was particularly long, included a viable tract of marine conservation area, and hosted many fishers, the local government might be well-served by having a strong technical team from the fisheries service.

3. Ensuring environmental sustainability at the site level seemed to be simpler. Sometimes data about the linkages between development action and environmental consequences were not available, while site-level studies very often pointed to the link clearly.

4. Business-oriented solutions could be more cost-effective than conventional project-based interventions, such as for poverty reduction or environmental conservation.

Table: Summary of components and impacts of a scaled-up initiative

Components of scaled-up initiative	Impacts
Expansion of sustainable harvesting system	1. Reef ecosystem improvement and higher yields - Coral cover improvements of 19.4 km^2 from previously mostly poor condition. - Fishery yield improvement from 43.8 tonnes/year of reef fish to 291-399 tonnes/year. Total value increases to US$22,500-US$40,000/ km^2/yr. Yield of other pelagic and demersal fishery improves. 2. Decrease in operating cost. Less spending on bribes and opportunity cost of wasted time (jail time, idle time due to patrolling activities, etc). 3. Decrease in fish mortality. More fish reach final consumers. Previously only 40% caught survive. Every 10% reduction in mortality rate can save more than 400,000 fish going to waste, and optimize the income of fishers involved by US$20,000. 4. Improved social standing and reduced social conflict.
Transformation of the business model	Improved income through both higher income per unit and higher total yields. More fish value goes to fisher, from 14% to at least 28%. Average gross income increases from US$8-US$17/person/trip to US$16-US$34/person/trip through collective effort. If fishers act as their own exporter then gross income can be as high as US$56-US$119/person/trip.
Coral reef rehabilitation and breeding	1. Enhanced reef ecosystem. 2. Sustainable income for live coral harvesting. Net present value income of about US$1,000 for one year of breeding 1,000 pieces of live coral to reach exportable size.
Government-sponsored capacity building, research and development	1. One expert in ornamental fishery at the Kabupaten Fishery Service . 2. R&D in ornamental fishing technology and/or equipment lower cost for equipment and/or supplies.

The experience at Les Village had helped promote similar activities elsewhere in Bali. So far, these promotions had not been as similarly successful. Among the interventions modelled after the Les experience was that carried out in Pejarakan Village, located on the periphery of the marine conservation area of the West Bali National Park. This has been the most advanced and similar model, and there are also some lessons to be learned from the experience.

The Les Village initiative had been assessed to have failings, including the lack of attention and support by the local government. The local government seemed to have no inkling of what was achieved by

the villagers, though the project flourished despite the lack of official facilitation. This demonstrates that communities may have technical capabilities that even the government lacks, and therefore government intervention is not necessary.

The lack of capacity in an important local sector meant that the local government only paid attention to the sectors it did understand, which unfortunately did not have strong linkages to the poor. This seemed to exacerbate the case of persistent poverty in the area. Market mechanisms have allowed the villagers to take advantage of international demand for local products. To be able to take advantage of this demand, and the premium price that comes along with the sustainable harvesting method, villagers will need a certain level of institutional support and cooperation from other stakeholders in the live fish trade. Without the larger enabling environment, including regulatory support in the form of a sustainable harvesting certification system, villagers will find it harder to grow their income and put distance between themselves and poverty.

5.6 Abbreviations and acronyms

PRSP	Poverty Reduction Strategy Paper
IAP	Integrated assessment and planning
BAPPENAS	Badan Perencanaan dan Pembangunan Nasional/ The Indonesian National Planning Development Agency
PROPENAS	The Indonesian National Development Planning Document
KPK	Komisi Pemberantasan Kemiskinan/ Committee of Poverty Eradication
NGO	Non-governmental organization
PRSP	Poverty Reduction Strategy Paper
SDPK	A local poverty reduction strategy paper
PPA	Participatory Poverty Assessments

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6. Kenya: Integrated assessment of the Energy Policy
With focus on the transport and household energy sectors

6.1 Introduction

There is emerging concern in Kenya that planning at the national level has concentrated on economic issues with less attention paid to social and environmental issues. To address this shortcoming, UNEP launched an initiative on integrated assessment and planning (IAP) for sustainable development in Kenya. The objective of the project was to demonstrate the usefulness of IAP in improving planning processes. The assessment focused on the energy planning process due to its potential for reform and also because the sector's sustainability aspects were easily discernable.

The overall purpose of the project was to develop institutional capacity for IAP in Kenya. By assessing energy planning and energy policy in the country, the project highlighted critical linkages between increasing access to energy services and economic development. This enhanced the country's capacity to integrate economic, social and environmental considerations into planning for the energy sector as well as other national planning processes. UNEP, UNDP-Kenya and the Government of Kenya through the Ministry of Planning and National Development (MoPND) were partners in this project, with the Kenya Institute of Public Policy Research and Analysis (KIPPRA) being the national implementing institution.

The focus of the project was initially assessment of the Global Village Energy Partnership (GVEP). However, the focus was later switched to Sessional Paper No. 4 of 2004 on Energy (Energy Policy) since the GVEP process was then still at the planning stage. The Energy Policy provided a good opportunity to test the IAP methodology due to the unique role of energy in sustainable development. Due to time and resource constraints, the project team chose to focus on the transport and household sectors of energy consumption, given their importance in the overall energy consumption matrix and their economic, trade, social, and environmental significance.

6.2 Assessment process

Scenario analysis is adopted for the assessment, with three scenarios built. In the *Business As Usual* scenario, energy policy and planning are assumed to remain unchanged. Under the *Implementation* scenario, the Energy Policy is executed fully. The third scenario is *Win-win*, in which the Energy Policy is not only implemented fully but the outcome is enhanced with parallel improvements to the Traffic

Act, Kenya Roads Board Act and Kenya's transport policy, among others. Using the 2004 levels of economic, social and environmental indicators as the baseline, projections are made for 2030 for each of the three scenarios. The indicators used include level of energy demand, prices, employment, incomes, green house gas and lead emissions, energy-related respiratory disease incidence, and consumption of fuel, charcoal and firewood. The actual assessments were made using evaluations, synthesis and analysis of available data, regular meetings, stakeholder consultation, brainstorming, field surveys and policy mapping.

Broadly speaking, the stakeholders involved included the Kenya Power and Lighting Company (KPLC), the Kenya Electricity Generating Company Limited (KENGEN), the Electricity Regulatory Board (ERB), the Kenya Association of Manufactures (KAM), the Global Environmental Facility (GEF), the Ministry of Energy (MoE), the Ministry of Planning and National Development (MoPND), the National Environment Management Authority (NEMA), the Ministry of Finance (MoF), the Ministry of Trade and Industry (MoTI), the Ministry of Agriculture (MoA), and non-governmental organizations (NGOs) such as Intermediate Technology Development Group (ITDG) and Queconsult.

As part of the assessment, a policy-mapping exercise was carried out to identify the general linkages between energy and Kenya's development policies at both macro and sector levels. The policies considered under study were the Economic Recovery Strategy (ERS), which served as the overall policy framework; and sectoral policies on forestry, water, industry, environment, agriculture, small and micro-enterprises (SMEs), transportation, health, wildlife, fisheries, tourism, trade and poverty.

6.3 Sustainable development and the energy sector in Kenya

Kenya faces a number of economic, social and environmental challenges. During a period of 40 years, the country fell from one of the most promising developing countries in sub-Saharan Africa, both in terms of growth and social development, to a stagnated economy struggling to find a new roadmap of sustained growth. Between 1972 and 2003, for example, despite real GDP growing at an annual average rate of about 3.3 per cent, per capita real GDP only grew at about 0.2 per cent per annum, reflecting growing population pressure. Available data also revealed that real per capita income in 2003 (about US$426) was well below the figure the country achieved in the late 1970s.

In 2003, the economy continued with its gradual economic recovery by posting a real economic growth rate of 1.8 per cent, up from 1.2 per cent in 2002. The recovery strengthened further in 2004 when the economy grew 4.3 per cent and in 2005, 5 per cent. Despite these gains, however, the country's poverty status remains largely unchanged. The social challenges Kenya faces include a HIV/AIDS pandemic, gender imbalance, high levels of insecurity, high levels of unemployment and underemployment, unequal access to education, low quality of education, and high levels of poverty. Among these, poverty, which signifies deprivation of necessities of life and opportunities for human development, is the most challenging, and directly or indirectly worsens the other problems. The proportion of people living below the poverty line and who predominantly subsist on natural resources increased from 48 per cent in 1994 to 52 per cent in 1997 and again to 57 per cent by 2003. Some of the environmental challenges are increased

deforestation, air pollution, water pollution, soil erosion and soil degradation, high biodiversity loss, human-wildlife conflict and increase in frequencies of droughts, floods, disasters and emergencies, among others. One of the major constraints on economic growth, trade expansion and poverty reduction has been the inadequate supply and high cost of energy and the lack of access, especially for the rural poor, to modern forms of energy.

6.3.1 Energy sources

There are three main sources of energy in Kenya. These are wood fuel, petroleum and electricity, accounting for 70 per cent, 21 per cent, and 9 per cent of total energy use respectively. The major sources of electricity are hydro, geothermal and thermal power. The key players in the power sector are KPLC, KENGEN, ERB, MoE, and independent power producers (IPPs). KPLC is 48.4 per cent government-owned and is the only licensed public electricity transmitter and distributor.

The generation of electricity in Kenya has several players, chief among them being the state-owned KENGEN, and three IPPs. KPLC has power purchase contracts with KENGEN and the IPPs. KENGEN accounts for more than 82 per cent of the country's total installed generation capacity. The installed power capacity, in June 2005, was 1155.0 MW. The breakdown was: hydropower at 677.3 MW, oil thermal power at 344.2 MW, geothermal power at 128 MW, and wind power at 0.4 MW. The effective capacity was 1066.9 MW.[1]

Petroleum energy is exclusively imported and is mainly used in the transport, commercial and industrial sectors. Kenya's oil imports have not seen major shifts apart from sharp increases during the power crisis of 1998-2000 when the country imported extra tonnes of oil to meet increased demand. The petroleum sector has been liberalized and the only direct government involvement in the petroleum industry is in the oil refinery it co-owns through the Kenya Petroleum Refineries Ltd (KPRL) with three private companies (Shell, BP and Chevron) on a 50-50 equity basis, and in oil storage facilities at Kipevu, capable of holding 1.5 million barrels. Regulatory functions in the petroleum sector are shared among various players including the MoE, provincial administrations, local authorities and the Kenya Bureau of Standards (KEBS). The Petroleum Institute of East Africa (PIEA), a voluntary membership institution patronized by major oil companies, plays a key role in capacity building and awareness creation. It was anticipated soon after the time of writing that this sector would have come under the overall guidance of the proposed Energy Regulatory Commission (ERC), which would be built upon the existing ERB.

In the area of biomass fuels, wood fuel has remained the most important source of energy in Kenya, meeting over 70 per cent of the country's total energy consumption needs. Eighty per cent of the population depend on it for domestic needs.[2] Wood fuel meets 90 per cent of rural households' energy requirements and 85 per cent in urban areas. This state of affairs has major implications on sustainable development. Unsustainable harvesting, given the lack of efforts in reforestation and on-farm planting of wood lots, has often led to soil degradation, deforestation and associated diseases. Charcoal continues to be

[1] KPLC, 2005.
[2] Mugo and Kituyi, 2002.

harvested from trust lands and gazetted forests, an annual business worth Ksh 17 billion. Improved charcoal production technology has had minimal impact on recovery and production. Household use of charcoal stands at about 47 per cent at the national level. That breaks down to 82 per cent and 34 per cent for urban and rural households respectively. Total charcoal consumption is about 2.4 million tonnes (or 67 million bags of 36 kg each).

Alternative energy sources include solar energy, windmills, power alcohol and biogas. Programmes for their increased use have been formulated and are intended to supplement and conserve, where appropriate, other major sources of energy. Since they are renewable, these sources of energy have the potential to contribute to social, economic and environmental dimensions of sustainable development. Other potential sources of energy in Kenya are nuclear power and natural gas.

6.3.2 Genesis and evolution of the Energy Policy

The energy policy in Kenya has evolved through sessional papers, regulations and Acts of parliament. The landmark policy paper that set the basis for development of the country, Sessional Paper No. 10 of 1965, dwelt on the Electric Power Act (CAP 314) that had been used to regulate the sector. Sessional Paper No. 1 of 1986, which was another landmark policy blueprint, however did not focus much on the power sector. Instead, it called for the establishment of the Department of Price and Monopoly Control (DPMC) within MoF to monitor acts of restraint of trade and to enforce pricing in the various sectors including petroleum. The next significant legislative development came in 1997. The Electric Power Act of 1997 was legislated to replace CAP 314 and take on board new developments, to facilitate private sector participation in the provision of electricity. Nevertheless, the Act was still inadequate in terms of providing incentives to the private sector and accelerating electrification in the country. The Electric Power Act of 1997 led to the establishment of ERB in 1998, with the objective of regulating the generation, transmission and distribution of electric power in Kenya. The same Act unbundled generation from transmission and distribution of power, functions that were at the time being carried out by KPLC. Consequently, KENGEN was established in 1998. The Electric Power Act 1997 also provided for rural electrification on a limited scale using renewable energy technologies.

There have also been policies and Acts of parliament in the petroleum subsector. The Petroleum Act Cap 116 has been in use in the petroleum sector for a long time. There was also the Petroleum Exploration and Production Act enacted in 1984, which gave the National Oil Corporation of Kenya (NOCK) the mandate to oversee oil exploration activities in the country. A major development in the energy sector had been the Sessional Paper No. 4 of 2004 on Energy. The new Energy Policy proposed the replacement of Cap 116 with new legislation consistent with a liberalized petroleum sub sector that would, *inter alia*, establish a one-stop shop for licensing importers and wholesalers of petroleum fuels, establish an inspectorate to enforce compliance with petroleum regulations, and oversee petroleum industry operations. The petroleum industry was liberalized in 1994 just like most markets in Kenya at that time. A draft Energy Bill 2004 has also been tabled in Parliament. The Bill proposed to harmonize the legislations concerned with the various energy subsectors. It was intended to address the current disparities in subsector regulations and bring regulation and enforcement of energy sector activities under one body, the ERC.

6.3.3 The energy planning process

Energy planning consists of four stages, which are: setting of energy goals and objectives; making demand and supply forecasts; implementation; and monitoring and evaluation. Energy planning means matching demand and supply. Interventions can be demand oriented, supply oriented or a combination of both. Energy planning is not a one-time exercise, but a continuous and iterative process. Results are continuously reviewed and new information leads to new analyses. In Kenya's electricity subsector[3], the Least Cost Power Development Plan was used for planning purposes. For supply projections, the Generation Simulation Model (Gensim) was used to arrive at possible generation plans, including possibilities of energy imports from neighbouring countries or power pools. Implementation, and monitoring and evaluation, the last two stages of energy planning, were either not carried out or carried out unsystematically.

Due to the lack of an overarching policy to guide the operations of the energy sector, the MoE formed a sector working group in 2001 with the mandate of delivering a sessional paper on energy. The group was composed of representatives from departments and parastatals within the MoE. The sector working group relied on previous policy statements from 1982 and 1987. To come up with the sessional paper, a series of retreats and stakeholder meetings were held at Nyeri, Mount Kenya, Mombasa and Nairobi between July 2001 and February 2004. The policy has since been printed. Although some provisions in the policy have been implemented, it is yet to be launched officially.

6.4 Results

6.4.1 Assessment of planning process and policy integration

The IAP project revealed a number of weaknesses in the energy planning and policy process in Kenya. First of all, planning has focused on electricity and petroleum sub-sectors and tended to neglect other sources of energy such as biomass.[4] Secondly, there has been no systematic attempt to undertake an integrated and holistic approach to energy planning. Moreover, with the exception of electricity, most energy projections in Kenya relied on historical growth, which often produced inaccurate figures. This also hampered "out-of-the-box" thinking in the planning process. Furthermore, the projections[5] used in energy planning exercises have failed to include conservation and efficiency targets, as well as the effects of technological developments on such targets.

Furthermore, there were important omissions within the policy development process of the Energy Policy. Firstly, there was inadequate stakeholder involvement. The poor, the vulnerable and the marginalized were not adequately involved. Stakeholders ought to have been consulted right from the very initial stages. The extent to which the views[6] of the stakeholders were factored into the final policy document was also unclear. Secondly, the

[3] It was only for electricity that planning was carried out. In the petroleum subsector, only individual oil companies undertake strategic planning.
[4] No rigorous attempts were made for solar, wind, biomass and municipal waste.
[5] With the exception of those already formulated for electricity.
[6] Some stakeholders claimed that their views were not factored into the policy document. The Civil Society lobbied for the inclusion of biomass and renewable energy in the Energy Policy but only succeeded partly.

policy process generally was neither systematic nor well organized. There was no consistent representation from organizations, implying little institutional memory. As a result, issues that had been agreed upon were repeatedly re-introduced, slowing down the progress of the policy process considerably. Since there was no committee to review draft policy documents, objectivity might also have been affected. Thirdly, there was also no representation from important organizations such as NEMA suggesting that environmental issues might have received inadequate consideration.

There are a number of gaps in the current energy policy that were identified through stakeholder consultations. The policy does not give adequate coverage to poverty, gender, biomass fuels (particularly charcoal production), energy processing marketing, and renewable energy. The policy is also silent on deliberate proposals or provisions to decongest and improve quality of roads, target road improvement as a fuel reduction option, and eliminate leaded gasoline and ordinary diesel. Although the government is committed to phasing out leaded gasoline as per the Dakar Declaration of 2001, there has been no deliberate policy statement and strategy in the Energy Policy. Provisions such as promotion of mass transport in cities; construction of ring roads, flyovers and by-passes; repair of dilapidated roads; promotion of use of bicycles; gradual elimination of very old vehicles from the roads; quality monitoring of smoke and vapour emitted from vehicles; and annual vehicle inspection programmes should all have been part of the Energy Policy. Some of these are special provisions from the Traffic Act, Kenya Roads Board Act, and the First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC). Finally, there are no implementation strategies and targets for biomass energy.

Policy mapping showed some considerable level of integration and synergy between Kenya's ERS and forestry and environmental policies, and the Energy Policy. Integration still needed to be deepened, according to IAP findings. During future policymaking or revisions, it must be a matter of serious consideration.

6.4.2 Scenario analysis – the transport sector

Petroleum Demand and Employment

The amount of petroleum demanded by the transport sector will rise from 1,899,680 tonnes in 2004 to 8,642,370 tonnes, 5,266,810 tonnes and 6,754,640 tonnes in 2030, under the *Business As Usual*, *Implementation* and *Win-win* scenarios respectively (see Table 1).

The states of affairs under the last two scenarios are desirable as the import bill of petroleum will decline and also less pollution will be expected. However, the price of energy services is expected to rise over time despite energy conservation, energy efficiency, and the use of new technologies in generation. The contribution of the transport sector to GDP itself is expected to increase under the *Win-win* and *Implementation* scenarios, compared to *Business As Usual*. This is due to efficiency gains in transport and therefore higher productivity. Employment in the transport sector is projected to reach 15.7 million, 20.5 million and 26.86 million by 2030 under *Business As Usual*, *Implementation* and *Win-win* scenarios respectively, from a level of 6.8 million people in 2002 (see Table 1).

Table 1: Projected petrol demand and employment in energy sector in 2030.

Indicator	Base Year	BAU	Implementation	Win-win
	2004	2030	2030	2030
Petroleum demanded (tonnes)	1,899,680	8,642,370	5,266,810	6,754,640
Employment (millions)	6.8*	15.7	20.5	26.86

* From 2002

Pollution from motor fuel emissions

Under Business As Usual, a steady increase in the atmospheric concentrations of key pollutants commonly found in the transport sector (see Table 2), such as greenhouse gases (GHGs), nitrogen oxides (NO_x), sulphur dioxide (SO_2), lead and particulate matter (PM_{10}), is envisaged. It is assumed to increase at the same annual rate (6 per cent) as fuel demand. Higher than expected amounts of methane (CH_4) and dinitrogen oxide (N_2O) will also result from the growing numbers of old vehicles on the roads. By 2030, over 75 per cent of all vehicles on the roads will be older than 15 years. However, with implementation of the Energy Policy, there will be accumulated reductions of CO_2 to 8.8 Tg (1 Tg = 10^{12} g), which will be only about 40 per cent of the anticipated *Business As Usual* emissions in 2030. Lead in soil is expected to decline from 105 µg/g in 2004 to 14.7 µg/g in 2030, an 86 per cent reduction, while ambient air concentrations (currently at 0.4-1.3 µg/m^3) is expected to fall sharply to almost undetectable levels in urban areas within the first year of implementation. An 8 per cent annual loss of lead from roadside and urban soils is therefore feasible following the phasing out of leaded gasoline from the market. Under the *Win-win* strategy, a total reduction of CO_2 of 8.3 Tg by the year 2030, or about 37 per cent below the anticipated *Business As Usual* emissions, is expected (see Table 2).

Table 2: Summary of projected GHG, lead and fuel consumption in 2030

Indicator	Base Year	BAU	Energy Policy	Win-win
	2004	2030	2030	2030
CO_2 (Tg)	4.9	22.2	13.9	3.6
CH_4 (Gg)	0.4	1.8	1.5	0.5
N_2O (Gg)	0.7	3.1	2.5	0.5
Lead ambient ($\mu g/m^3$)	0.8	3.6	Not detectable	Not detectable
Lead soil ($\mu g/g$)	105.0	477.7	14.7	14.7
Fuel total (mill. tonnes)	1.5	6.8	5.7	1.4
Gasoline (mill. tonnes)	0.6	2.7	2.2	0.4
Diesel (mill. tonnes)	0.9	4.1	3.5	1.0

6.4.3 Scenario analysis – the household energy sector

Pollution from household energy consumption

The household sector is expected to emit 256 Tg of CO_2, 423 Gg of CH_4 and 13 Gg of N_2O (see Table 3) into the atmosphere in the year 2030 under the *Business As Usual* scenario. With *Implementation* scenario, there will be a general reduction in emissions of all key gases, the most notable being CH_4 and PM which may be totally eliminated. In the *Win-win* scenario, further environmental gains are not expected but the new provisions will see accelerated implementation, leading to long-term and significant environmental gains (see Table 3), including mitigation of climate change, reduced low altitude ozone toxicity, and lower incidences of acute respiratory infections. It will also potentially lead to significant resource conservation of land and fuelwood.

Table 3: Summary of environmental gains under various scenarios

	Resources conserved		Emissions avoided (Gg/yr)				
	Woodlands (ha)	Wood (mill. t)	CO_2	CH_4	N_2O	PM	CO
BAU	Nil	Nil	256,143.8	423.5	12.8	245.4	5,039.1
Implementation	76,000	8.1	314,319.2	424.4	15.6	255.0	5,316.4
Win-win 100,000	14	354,386.0	299.2	17.5	200.7	4,371.2	

6.4.4 The case of biomass energy (fuelwood and charcoal)

Biomass energy (mainly firewood and charcoal) meets 70 per cent of total primary energy needs in Kenya, four-fifths of which is consumed by households. Most people in rural areas as well as the poor in urban areas use firewood and charcoal as a source of energy. This observation has implications for poverty reduction. In the case of fuelwood, for the *Business As Usual* scenario, household fuelwood consumption will increase by 38 per cent from 11.06 million tonnes in 2005 to 15.25 million tonnes in 2020. For *Implementation* and *Win-win* scenarios, consumption is expected to increase respectively to 11.62 million tonnes and 11.99 million tonnes by 2030.

Under *Implementation*, fuelwood stove manufacturers are expected to produce about 372,600 improved stoves in 2010, which will increase to 2,879,600 by 2030. They will get an income of Ksh 168 million and Ksh 1,296 million respectively in 2010 and 2030. For the *Win-win* scenario, manufacturers of fireless cookers are expected to manufacture about 400,000 fireless cookers in 2010, increasing to 3,025,000 cookers by 2030. The cookers will generate Ksh 280 million in 2010 and Ksh 2,118 million in 2030, and create 46,667 and 352,917 jobs in 2010 and 2030 respectively. About 39 per cent of the fuelwood-using population had access to adequate supply of wood fuel in 2004 and the proportion will decrease to 24 per cent by 2030.

Annual consumption of charcoal is expected to rise in the rural areas from 1.16 million tonnes in 2004 to 1.98 million tonnes in 2030 under the *Business As Usual* scenario but decrease to 0.99 million tonnes and 0.485 million tonnes under *Implementation* and *Win-win* scenarios respectively. In urban areas, consumption of charcoal will rise from 1.09 million tonnes in 2004 to 1.86 million tonnes in 2030 under B*usiness As Usual* but decrease to 0.93 million tonnes and 0.455 million tonnes under *Implementation* and *Win-win* respectively.

Under *Implementation*, charcoal stove manufacturers are expected to produce about 2,268,000 improved stoves in 2010, which will increase to 4,893,000 by 2030. They will get an income of Ksh 453.6 million and Ksh 978.6 million in 2010 and 2030, respectively. Under the *Win-win* scenario, manufacturers of fireless cookers are expected to manufacture about 352,000 fireless cookers in 2010, increasing to 2,676,000 cookers by 2030. The cookers will generate Ksh 284.1 million in 2010 and Ksh 2.143 billion in 2030, creating 16,182 and 121,800 jobs in 2010 and 2030 respectively.

Energy-related respiratory diseases will increase for the rural population from 5.3 million people in 2004 to 9.08 million people by 2030 for *Business As Usual*, and increase to 7.262 million for *Implementation*. However, a reduction to 1.09 million people in 2030 is expected for the *Win-win* scenario. As for the urban population, the 2030 figures are 210,000, 168,000 and 25,200 respectively for the three scenarios, compared to 122,400 people in 2004.

6.5 Conclusions and recommendations

There have been shortcomings in energy planning in the country. These include lack of adequate stakeholder consultation, lack of continuity in representation, inadequate integration of social

and environmental issues, absence of integration with policies in related sectors, absence of systematic or well organized processes, and inaccurate data/figures used for projections, among others.

The assessment confirmed the potential of provisions of the Energy Policy to protect human health, safeguard the environment and conserve resources. Effective implementation of these provisions under the modest assumptions made will lead, by 2030, to the reduction of 36.6 Tg/yr of CO_2, conservation of 76,000 ha of woodlands (mainly in marginal areas of Kenya), and conservation of 8.1 million tonnes of woody biomass, the equivalent of firewood or charcoal consumed yearly by 2030 under the *Business As Usual* scenario. An 86 per cent reduction in soil lead is also projected, as are significant reductions in CO, PM, CH_4 and N_2O.

Access to fuelwood, biomass consumption, incomes, job creation and health impacts had been identified as key social indicators. The analysis showed that the proportion of the population with access to adequate wood fuel will increase from 24 per cent under *Business As Usual* scenario to 65 per cent and 83 per cent under the *Implementation* and *Win-win* scenarios respectively. The pattern is the same for income generation and job creation. The assessment therefore showed that the current Energy Policy has enormous social benefits if implemented, provided that all the necessary institutions and structures are in place along with the required financial and human resources. In addition, adequate effort and funding are needed to generate regular and accurate data for improved policy formulation.

The transport subsector will yield more gains if energy efficiency and aspects of the traffic legislation as well as other laws are harmonized. On the other hand, the household subsector will better benefit if:

- Policy provisions on stove and kiln quality standards are incorporated.
- Micro-credit access for households and micro-entrepreneurs is improved.
- Biomass energy profile is raised on the national political agenda.
- Community capacity in farm forestry is created.
- Land tenure policy is adjusted to favour private land ownership.

The results of this assessment pointed to the need to restructure the existing energy policymaking process to a sustainability-sensitive one. Clear policy guidelines, complete with the main elements of a sustainability-driven policy, need to be developed and adopted for future policy development, not only for the energy sector but all economic sectors.

Given the implications of the assessment, there is a need to develop policy recommendations to address harmful economic, social and environmental impacts in addition to enhancing the positive effects. These recommendations may use market-based instruments such as subsidies, as well as command and control policies such as:

- **Targeted income subsidies.** With the rise in the price of energy, subsidies to the most affected such as the poor and SMEs may be considered. To be successful, there must be mechanisms to identify these groups. Also, policies geared to provide incentives for agro-forestry and village woodlots should be launched. Taxation can be reduced on goods commonly consumed by the poor and the SMEs. One important policy measure that the Kenya government has been pursuing is the elimination of value added tax on kerosene, cooking gas, maize flour and milk, all staples of the poor.

- **Differential taxation.** Such taxation involves exceptions or rebates, and can sometimes be used to encourage or discourage the production and use of certain fuels. In this case, there is the need to deepen the reforms associated with zero-rating of kerosene and cooking gas. However, it is clear that there are problems as there will be weak incentive for consumers to use energy efficiently and minimize environmental damage. One positive effect however is the likely reduction of deforestation as households consume more of these fuels instead of fuelwood. Even though zero-rating of LPG may not reduce the consumption of fuelwood especially in the rural areas, increased urban LPG use will relieve deforestation pressures and fuelwood scarcity in rural areas.

In order for the recommendations to be met, the government is expected to pass the draft Energy Bill 2004 into law. This should be done before the end of 2006. There is in addition a need to establish an institution to ensure consistent implementation and setting of targets for wood energy policies. Donors can also be helpful by availing funds for stakeholder participation, data generation and capacity building. The research community should also assist by identifying and developing innovative and cost effective methods of assessment. This should be done as soon as possible. Private sector organizations such as the Kenya Association of Manufacturers (KAM) and NGOs can also spearhead energy conservation and efficiency education to reduce waste.

The immediate next step is the dissemination of the results of IAP through workshops, website, brochures and flyers. The project steering committee should also review the findings of the project and plan to implement those parts that do not need changes. Given that the Steering Committee was composed of permanent secretaries in major government ministries, recommendations that do not require bureaucratic or cumbersome procedures, or heavy investment of human and financial resources, should be implemented since they will not face much opposition.

To effectively improve the participatory process of decision making beyond rhetoric, planners and policymakers should ensure that policy outcomes reflect the desires expressed by stakeholders. In this way, the people will see the benefits of participation and know that their views are being taken into account. There are prevailing opportunities always emerging, which should be formalized and nurtured through legislation. These include increasing transparency and room for debate, increasing representation through parliamentary committees, improved budgetary process, donor coordination and support, increased capacity for policy analysis, creation of local ownership and commitment to policy and budgetary process, strengthening the voice of the hitherto marginalized groups, and emergence of various stakeholder groups.

6.6 Lessons learned

To realize the benefits of the new planning initiative, the country will require assistance with policy, legal and institutional reforms. In addition, the following are necessary for successful implementation of IAP:

1. Need to raise awareness and popularity of the IAP process, by clearly explaining its benefits to unfamiliar stakeholders
2. Capacity development to aid assessment
3. Urgent need to demonstrate the benefits of IAP over conventional planning

4. Adequate resources to conduct rigorous assessment
5. Enactment of the draft Energy Bill 2004 to empower energy planning, promote investment in the energy sector, and conserve the environment
6. Need for legal backing for the planning process and public participation.

The process of policymaking can be improved through a number of measures. Some of these include raising the effectiveness of public participation, inter-ministerial coordination and multidisciplinary collaboration. The participation of affected communities, including the poor and the marginalized groups, is equally important. The private sector is also crucial, as it has a unique role in economic development and environmental degradation. There is also the need for transparency, accountability and easy access to information. Other measures include more frequent reviews, surveys, participatory appraisals, and the development of a comprehensive databank to facilitate regular assessments.

There are several challenges to the IAP approach. Firstly, mainstreaming environmental, social and economic issues into development planning requires analytical and adaptive capacities, which are currently inadequate. Examples include human and institutional capacity to handle environmental, social and economic problems in an integrated manner. These capacity problems are linked to inadequate funding.

Secondly, there is a problem of data availability. There is paucity of data on aggregate and sectoral energy needs. Some of the national data centres had inadequate physical facilities and obsolete systems, lack back-up systems, and use incompatible data formats. Moreover, for the indicators chosen, there was little information available even from institutions that were supposed to collect and/or store it. Lack of a legal and regulatory framework is another challenge. Until the Environmental Management and Coordination Act (EMCA) was enacted in 1999, there was no coordinated legal and regulatory framework for environmental issues in development planning. Even with EMCA, environmental issues were not considered from the beginning of the planning process. The draft Energy Bill, which makes provisions for integrated planning in energy, has not been enacted yet.

Another lesson was the weakness in the budgetary process. Although improvements are being proposed and implemented, the budgetary process is still dominated by executives in MoF. Institutional structures of the Ministry of Planning and National Development (MoPND) and other Ministries also presented another challenge. It was noted that there had been institutional alignments, as well as periodic mergers and separations for MoPND and MoF, usually on the basis of political considerations and other expediencies. This trend had reduced ability to conduct national policy development, management and implementation. Weak linkages between MoPND and the line ministries, as well as with its field officers at the provincial and district level, constituted another source of weakness. The task of formulating and implementing a coherent policy for the transport sector in line with the IAP approach was made more difficult since a number of ministries such as Transport, Energy, and NEMA under MoE are involved. This required inter-ministerial coordination, which was difficult considering separate policy agendas.

A persistent weakness of the policy process had been the lack of institutionalization. In the

past, it had been one of the factors leading to the pursuit of self-interest by those involved. Other challenges included longer time periods required for better assessment and decision making, and higher costs from adopting the IAP approach.

6.7 Abbreviations and acronyms

DPMC	Department of Price and Monopoly Control
EMCA	Environmental Management and Coordination Act
ERB	Electricity Regulatory Board
ERC	Electricity Regulatory Commission
ERS	Economic Recovery Strategy
GEF	Global Environmental Facility
Gensim	Generation Simulation Model
GHG	Greenhouse gases
GoK	Government of Kenya
GVEP	Global Village Energy Partnership
IPPs	Independent power producers
ITDG	Intermediate Technology Development Group
KAM	Kenya Association of Manufacturers
KEBS	Kenya Bureau of Standards
KENGEN	Kenya Electricity Generating Company
KIPPRA	Kenya Institute of Public Policy Research & Analysis
KPLC	Kenya Power & Lighting Company
KPRL	Kenya Petroleum Refineries Limited
MoA	Ministry of Agriculture
MoE	Ministry of Energy
MoF	Ministry of Finance
MoPND	Ministry of Planning and National Development
MoTI	Ministry of Trade and Industry
MW	Mega watts
NARC	National Alliance Rainbow Coalition
NEMA	National Environmental Management Authority
NOCK	National Oil Corporation of Kenya
PIEA	Petroleum Institute of East Africa
SMEs	Small and micro-enterprises
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention for Climate Change
UNEP	United Nations Environment Programme

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7. Lebanon: Integrated assessment of the Association Agreement with the EU

With a focus on the olive oil sector

7.1 Introduction

This integrated assessment of the Lebanon-EU Association Agreement (AA), which focuses on the Lebanese olive oil sector, is an all-embracing project to assess the socio-economic and environmental implications of opening up local subsectors to freer trade. The assessment was initiated in December 2004 and was headed by Lebanon's Ministry of Economy and Trade (MOET) in collaboration with the Ministry of Environment (MOE), and with the technical assistance of the United Nations Environment Programme (UNEP). The project focused on the olive oil sector because of the important role it plays in the Lebanese economy, local communities and the environment. Moreover, the keen willingness of stakeholders in the olive oil industry to provide necessary information and available data smoothed the way for an assessment.

Economically and socially, the olive oil sector has important repercussions in terms of poverty reduction, employment generation, migration, magnitude of trade and growth potential. Environmentally, the sector's role in defining rural landscapes now faces the challenges of solid and liquid waste handling and disposal. The assessment focused on the impact of the Lebanon-EU AA because it is crucial for the country's olive oil sector to have trade linkages with the EU. In fact, the survival of the sector may depend on its success in penetrating international markets with high price premiums. The AA permits Lebanon to export 1,000 tonnes of extra-virgin olive oil to the EU duty-free while allowing the country to impose a 70 per cent tariff rate on EU olive oil.

The project aimed to identify national priorities and outline action plans for Lebanon in line with European Neighbourhood Policy (ENP) guidelines. The results of the assessment illustrated how the integrated approach had been adapted to the Lebanese context, clearly showing it could be used in other sectors or planning processes. The integrated approach should also help fill some gaps in the existing literature since studies conducted so far had only assessed the AA's economic impact, omitting social and environmental consequences and the interplay of mutual linkages of all three.

The current lack of coordination and information sharing amongst the various research and other institutes is leading to duplication and inefficiencies. This project will promote cooperation by relevant

government and non-governmental entities. Since it is a country-driven national project, it will enhance national ownership, active participation and contribution by national ministries, the private sector and relevant stakeholders.

The report is targeted at policymakers and advocates (public sector bodies, private stakeholders, syndicates, cooperatives and NGOs) and aims to raise awareness of the importance of taking a more integrated approach to the design of trade policies.

7.2 Project process

A multi-disciplinary team comprising of a number of economists, a social scientist and an environmental economist conducted a participatory process that involved continuous consultations and discussions with various stakeholders, including farmers, olive oil syndicates, mill operators and traders. A Steering Committee was established and two workshops were conducted.

A scenario analysis was carried out to determine the projected impacts (economic, social and environmental) of exporting the full quota of olive oil allowed under the EU-Lebanon Agreement and compared it to a "business as usual" baseline. Two scenarios were defined as follows:

- **Scenario 1** accepted the state of the olive oil sector as it currently stands, without policy measures to encourage increased duty-free exports to the EU.

- **Scenario 2** assumed that needed olive oil quality improvements are made in Lebanon to take full advantage of the 1,000-tonne quota, once farmers and millers are shown the benefits of the improvements.

The main socio-economic indicators considered were export quantity, employment levels, poverty and migration, while environmental indicators were levels of olive oil production residues (vegetable water and pomace) and the manner in which they were disposed.

Quantitative analysis in the form of a "rapid" cost-benefit analysis was undertaken to assess the economic issues. Also, a comprehensive set of consultations and focus group meetings brought environmental and social issues into the picture. The importance of these qualitative consultations lied in the fact that data for quantitative analysis was lacking in Lebanon. The extensive consultations and focus groups meetings thus offered a useful alternative to determine the implications of the AA for the olive oil sector.

7.3 Results and findings

7.3.1 Scenario 1

Scenario 1 highlights the fact that most Lebanese olive oil farmers are not taking advantage of the duty-free export quota as this requires a change in farming and milling practices to produce olive oil of high quality (extra-virgin olive oil). The main economic and social impacts of this reluctance are:

- Lebanese exports of virgin and extra virgin olive oil to the EU have increased by about 365 per cent for 2002-2004, partly due to the elimination of customs duties for exports below quota, the depreciation of the Lebanese dollar relative to the Euro, and the ability of some producers, a small group nevertheless, to meet the necessary production, testing, labelling and bottling requirements demanded by the EU. Although total olive oil exports to the EU market have

been in the range of 0.36 to 2.8 per cent of total domestic production, and have almost no impact on domestic prices and production structures, the increasing trend does reflect a willingness to take advantage of higher prices in the wider market for extra-virgin olive oil.

- The configuration of the olive oil supply chain creates an asymmetric relationship between direct producers and traders. The situation is of a large number of vulnerable producers, scattered all over the country, and each producing a relatively insignificant fraction of national production. They are also dependant on a few influential traders, who already have access to cheap foreign olive oil, to sell their Lebanese production in local or international markets (see Table 1).

Table 1: Summary of social impacts of Scenario 1

Farmers and millers

Advantages from olive oil cultivation:

- Acts as the only social safety net keeping farmers from extreme poverty
- Additional source of income
- Not time consuming and easy to manage
- Olive oil residues are highly demanded in winter as heating material, especially in rural regions, granting extra income and reducing demand for more expensive non-ecologic fuels.

Challenges:

- Scattered throughout the country
- Unorganized
- Lack of resources and sufficient capacity to apply proper methods of production
- Lack of necessary incentives to produce high quality olive oil (as virgin and extra-virgin olive oil prices are not differentiated)
- Yearly production fluctuations.

Traders

Advantages from olive oil cultivation:

- Highest price premium is captured when EU standards are met, and proper marketing channels are ensured.

Challenges:

- Limited number of traders resulting in privileged position and price manipulation
- High cost associated with transport, testing, bottling, packaging and certification
- Fierce foreign competition
- Low investment due to erratic annual supplies.

All in all, there are no significant impacts from *Scenario 1* on the social structure associated with the olive oil production chain, since the incentive to export high quality oil is absent and most of the agents participating in the production and supply chain are unaware of the 1,000-tonne quota granted to the Lebanese olive oil industry under the AA.

There is an absence of concrete data on the environmental effects of olive farming in Lebanon, especially quantitative data for specific effects such as soil erosion and water pollution. However, the environmental implications of *Scenario 1* have been validated, to a certain extent, by sporadic field visits, expert meetings, and observations. The impacts are summarized as follows (see Table 2):

Table 2: Summary of environmental impacts of Scenario 1

1. **Oleiculture impact on:**
- **Soil**: Beneficial to soil preservation and reduces soil loss.
- **Water**: Positive impact on water conservation since Lebanese olive trees are rain-fed. Groundwater may be contaminated by extensive use of fertilizers and agro-chemicals, since pesticide use per hectare is almost twice the global weighted average figure.
- **Landscape and agro-tourism**: Positive landscape effects and agro-tourism friendly (with attractions such as existing 500 year-old water and olive mills).

2. **Olive oil milling produces:**
- **Pomace**. Used for heating purposes, or as fertilizer and animal feed. When burned, pomace emissions may have potential health implications.
- **Vegetable water**. Implications are severe, especially for ecosystems, depending on where they are discharged. When dumped into rivers, the water turns black and the high biological oxygen demand is detrimental to the flora and fauna in the river.

7.3.2 Scenario 2

In line with Steering Committee recommendations, a list of priority action plans to enhance the quality of Lebanese olive oil and achieve the benefits of *Scenario 2* has been prepared. To strengthen this sector's viability, these action plans have to be implemented before further trade liberalization discussions. Moreover, these plans largely fall within the sustainable regulatory framework that creates the incentive to produce better quality olive oil through upgrading mill operations and promoting better agricultural practices.

The economic benefits of applying the AA requirements for *Scenario 2* are truly substantial when the product is extra-virgin olive oil. The increase in revenues from bigger exports is perhaps insignificant in absolute terms, but when compared to revenues under *Scenario 1*, it is relatively considerable, reaching up to 23.8 times (US$3,500,000 compared to 2004's actual revenue of US$147,000). This additional income increases the local farmers' share of the domestic market at the expense of foreign farmers. Employment rates

are likely to increase slightly as a better qualified and efficient labour force is needed for mechanization and new management. This will hopefully aid in curbing high rural unemployment rates in the two most important olive oil producing regions in Lebanon, where local unemployment rates rose 0.8 and 1.4 per cent in 1997-2004. As a result of these improved economic indicators, national welfare is likely to improve slightly as exports, employment and incomes are enhanced.

An increase in the production of extra-virgin olive oil will create a spill-over effect which affects employment patterns, poverty levels, migration trends and educational opportunities. In response to the increase in demand for their premium olive oil, farmers will look to hire more seasonal labourers during the harvesting period. Local women and foreign labour are the likeliest candidates as they cost less. In *Scenario 2*, better milling productivity and greater employment opportunities are likely, which translate into a more reliable income safety net. However, new production processes may, in the short-run, impose social costs.

Youths from low income regions see a high opportunity cost from not leaving home to migrate to job intensive regions. Since, however, olive oil production activity is underexploited and profits untapped, youths who are made aware of the opportunities in extra-virgin olive oil can be encouraged to take up this activity nearer to home. Increased revenues and improved living conditions without migration can become a real prospect.

The poverty–unemployment–migration–education pattern, if not handled properly, is likely to become a vicious cycle, leading to massive deterioration of living conditions. Higher economic returns associated with the sector can create incentives to remain in those communities, build better infrastructure, lower costs of production and increase investments. Increases in household budgets will allow an expenditure reallocation towards goods and services related to health. Reducing poverty increases access to health services, medication, vaccines and good nutrition. Health improvements lead to stronger work attendance and performance, and also decrease household expenditures on healthcare.

Very often, the poor cannot access banking or financial facilities because they have no collateral or guarantees. Agricultural holdings do not necessarily offer a means to escape poverty unless the size, productivity, and marketing of agricultural activities can generate sufficient income. Enhancing investment and access to credit therefore loosens up liquidity constraints on the poor.

Article 45 of the AA encourages "cooperation in preventing deterioration of the environment, controlling pollution and ensuring the rational use of natural resources, with a view to ensuring sustainable development." Application of Article 45 to olive oil production should involve the entire process from farming to marketing. Farming practices that are unsustainable such as the misuse of pesticides and the pruning of olive branches need to be changed. Milling waste such as vegetable waters need to be disposed properly and not be released untreated into natural or river ecosystems. For marketing, recycled bottles can be a sustainable option.

Exporting 1,000 tonnes of duty-free olive oil to the EU does not necessarily mean an increase in total production and supply, though it is highly possible. More likely, a re-orientation of production

to extra-virgin olive oil will happen. Therefore, the environmental implications of fulfilling the full quota will not exceed what is currently observed. In fact, should Article 45 be implemented, the implications for the environment are positive since better agriculture practices will occur.

Scenario 2 clearly offers more potential benefits compared to *Scenario 1* on all three fronts of economic, social and the environment.

7.3.3 Cost-benefit analysis of economic impacts

Given time, financial and data constraints, a rapid CBA, consisting of both quantitative and qualitative aspects, was conducted. Environmental and social costs and benefits however were not included due to lack of quantitative data. The CBA findings were:

- Total projected costs of all action plans under Article 45, including changing traditional mills to modern ones, were estimated to be about US$81.4 million, spread out across varying time frames to a maximum of 16 years.

- The benefits were assumed to be US$27 million per year over a 13-year period, commencing within three years of implementation. These benefits had to be mathematically discounted as they extended into the future.

- Consequently, the CBA showed that total net benefits from applying *Scenario 2* were approximately US$269.6 million, US$137.3 million, and US$79.39 million applying discount rates of 0 per cent, 3 per cent and 5 per cent respectively.

All in all, the economic values indicated an immense potential benefit from applying *Scenario 2*-type assumptions.

7.4 Recommendations

The project proposed a range of complementary measures to be undertaken in order to successfully reform the olive oil sector. These measures are partly in the form of continuing technical and financial assistance from the EU within the framework of the European Neighbourhood Policy (ENP), which is a commitment to enforce relevant regulations and stakeholders' commitment to a public-private partnership. Trade regulations such as quality standards as well as regulations on duties and their gradual elimination, should also be communicated to all parties involved, as this ensures efficiency and lowers the incidence of rejected products. Furthermore, technical and non-trade barriers such as lengthy bureaucratic procedures should be revised and eliminated when unnecessary.

The Government of Lebanon should encourage each region in Lebanon to regionally brand its products as "unique" or "distinct" to better target niche markets (such as that of the Lebanese diaspora). The EU can encourage this endeavour by helping to create these geographic "lines" in Lebanon and also by financing the promotion of such products at European trade fairs and exhibitions. However, the major contribution should come from Lebanon's relevant Ministries as well as the different municipalities and cooperatives concerned with olive oil production.

Well within its prerogatives, the Government can create an enabling environment by improving inter-ministerial coordination. It should upgrade and certify existing testing laboratories, disseminate information to stakeholders and build databases. It should also provide training for farmers and mill

operators (such as training on good agricultural practices and good manufacturing practices), facilitate by-product management, and provide access to capital. For example, the treatment of vegetable water ought to be financed and implemented by the Government.

Centralizing decision-making on olive oil (by forming a national olive oil office, for example) will go a long way in addressing all the concerns and priorities of the various stakeholders. A national policy (with respective action plans) can be formulated in which the various stakeholders are given specific responsibilities to improve the sector. The policy should be moving towards the production of better quality olive oil by decentralizing quality checks and enforcing necessary laws (on hygienic milling conditions and olive oil quality categorizing, for example).

The private sector will play a major role in achieving economies of scale, promoting fair competition, disseminating information and proposals, investing in newer technologies and production techniques, maintaining a competitive edge, coordinating with NGOs, and promoting the public-private partnership. Finally, NGOs should continue to work with the private sector to maintain efforts in raising awareness, training farmers, enhancing inter-NGO networking, disseminating information and facilitating public-private partnerships.

7.5 Conclusions and follow-up

Lebanon's olive oil sector is currently facing tremendous hardships in the form of high production costs, regional competition, sub-standard quality output which does not permit exports (including to Europe), and a lack of proper coordination and management by the main actors in the field. Such hardships exacerbate the already severe socio-economic concerns in the region like unemployment, poverty, a weakening quality of life and rural-urban migration. The findings of the assessment have stressed the need to strengthen the sector by implementing a number of key regulatory and policy improvements that bring the olive oil sector up to export quality standards. Many of the initiatives proposed would also have positive environmental implications and optimize the socio-economic benefits of the AA.

For best results, it is necessary to have a unified body or task force within the public sector in charge of coordination with various beneficiaries. Indeed this will allow proper monitoring and avoid duplication. Political will and engagement are necessary for effective changes to be made. Building institutional capacity is central to improving coordination, disseminating information, implementing new regulations and imposing quality controls. Indeed the process has already started with the establishment of a Steering Committee (for this project) with representatives from relevant ministries, the chamber of commerce, the olive oil syndicate and active NGOs in the field. The ability of the Committee to positively impact the sector is dependant on taking priority action at the community level. In addition, regional cooperatives will allow outreach to the farmers' community which has been the most difficult group to engage. Active coordination with regional Chambers of Commerce on a regular basis will ensure better channels of communication and sharing of information between farmers and traders. Increasing awareness of the AA and extra-virgin olive oil is central to exploit the Agreement's full potential.

Finally, the public sector is recommended to monitor olive oil production by engaging stakeholders in regular meetings and undergoing regular sectoral analysis. The public sector has a key role. The AA should be taken as an opportunity for the olive oil sector, and probably other sectors, to re-examine production techniques and processes, address key bottlenecks that prevent better profitability, and improve the overall socio-economic situation of farmers, mill operators and traders.

7.6 Abbreviations and acronyms

AA	EU-Mediterranean Association Agreement
CBA	Cost benefit analysis
ENP	European Neighbourhood Policy
EU	European Union
MOE	Ministry of Environment
MOET	Ministry of Economy and Trade
NGO	Non-governmental organization
UNEP	United Nations Environment Programme

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8. Russion Federation: Integrated assessment of the Tomsk Oblast Development Strategy

8.1 Introduction

This summary presents the major findings from the integrated assessment of: (a) the Tomsk Oblast Development Strategy to 2020; and (b) the Programme of Socio-economic Development 2006-2010. This assessment was one component of a large assessment effort, which began in December of 2003 and finished in February of 2006.

Project objectives were to:

- Raise stakeholders' awareness of the integrated approach and its advantages
- Enhance the stakeholders' capacity to apply integrated assessment
- Enhance the involvement of "non-traditional" stakeholders in the planning/policymaking process
- Strengthen vertical and horizontal cooperation within the planning/policymaking hierarchy
- Facilitate the design of integrated programmes on the regional and local levels (ESE integration).

The key strategic initiatives that will define the socio-economic development of Tomsk Oblast in the next 15 years are Tomsk Oblast Development Strategy to 2020 (the Strategy) and the Programme of Socio-economic Development 2006-2010, or the subjects of assessment.

8.2 Assessment process and methodology

Integrated assessment and planning (IAP) is a new planning tool proposed by UNEP. It promotes the integration of socio-economic development and environmental goals during development of a territory. Moreover, the IAP approach suggests close integration of the planning and assessment processes. In this project, the main aim was to demonstrate IAP and also strengthen the Strategy as a sustainable development tool. The following methods were used:

- **Scenario analysis.** Based on the strategic analysis carried out by the Strategy's developers, three development scenarios were built for IAP, focusing on risks that would result in Strategy failure and providing suggestions on risk reduction.

- **Objective-led appraisal.** Sustainable development goals were formulated using the official documents developed and adopted in Tomsk Oblast. The appraisal was done on two levels:

- The system of strategic priorities, goals and objectives was analysed for compliance with sustainable development goals. The areas of partial non-compliance and under-used

opportunities were identified and suggestions were made to harmonize them with sustainable development goals.

- Priority business projects recommended in the Programme of Socio-economic Development 2006-2010 were analysed for compliance with sustainable development goals. Recommendations were then proposed on assessments needed when preparing individual projects.

- **Identification of strategic impacts.** The team identified impacts on the environment and environmental risks associated with the development of some economic sectors, and qualitatively assessed their importance and severity.

- **Consultation with stakeholders.** In the course of the planning process, consultations with the Tomsk Oblast leaders, self-governance authorities, business representatives, NGOs and other active social groups were organized. Within the scope of the IAP project, further input was obtained from the population, teachers, professors, students and NGOs of some districts.

The integrated assessment was carried out in parallel with the Strategy's planning process. Independent experts and representatives participated in integrated assessment and the findings were discussed with Tomsk Oblast Administration (TOA) in detail. However, the IAP team pointed out there had been insufficient coordination and linkages between the assessment and planning processes. This and other recommendations triggered a number of questions and objections among TOA's officials and resulted in long negotiations. The outcome was TOA's decision to review the Strategy in one year. This review would consider the recommendations from this project, evaluate the Strategy's first year of implementation and obtain from all stakeholders.

8.3 The Strategy and the Programme

The object of the assessment was the planning process for the mid and long-term socio-economic development of Tomsk Oblast. The team studied the development and content of the following strategic documents:

- Strategic analysis documentation
- Tomsk Oblast Development Strategy to 2020 and Strategic Concept
- The Programme of Socio-Economic Development of Tomsk Oblast 2006-2010
- Consolidated short-term plans of Tomsk Oblast Administration for 2006
- Short-term plans of lower level divisions and municipalities for 2006.

The Strategy was developed based on the findings found in the strategic analysis documents, which described the key problems, challenges and competitive advantages of Tomsk Oblast. The analysis then formulated a strategic vision and development scenarios, which considered the following macro parameters:

- World oil prices
- Growth rate of high-tech industries in the Russian Federation
- Date of Russian accession to the WTO
- Unemployment rate in the region
- GDP growth rate in Russia
- Trends in taxes allocation of the different regions

of the Russian Federation
- Trends in the population of Tomsk Oblast.

Based on the strategic analysis findings, a division of Tomsk Oblast into North and South territories was suggested for assessment purposes. The documents suggested that the South would develop as the centre of knowledge and innovative technologies, while the North, which was rich in oil and natural gas, would remain a production site.

Priority economic sectors were then marked for special attention. The top priorities were information technology (IT), biotechnology, education and research complexes (ERC), the "new economy", and electrical engineering. The traditional priority for Tomsk Oblast was the oil and gas industry but was recommended as a second tier priority sector along with nuclear energy, food and mechanical engineering in the strategic analysis documents. TOA would pay less attention to the development of these industries. The third level priorities were timber, gas and petrochemical industries, and agriculture.

From this, the following strategic goals of Tomsk Oblast were identified:

- Significant level of entrepreneurial involvement
- Efficient and balanced economy
- Strong investment attractiveness
- Highly internationalized economy
- High quality human capital
- Developed infrastructure
- Rational use of natural capital
- Good conditions for life, career, recreation and children's education
- High effectiveness of Oblast authorities.

After the goals were identified, the Programme of Socio-economic Development from 2006 to 2010 was then drafted to specify the activities of the TOA aimed at reaching the strategic goals, as well as the Oblast's policies for different economic sectors, social spheres and the environment. Furthermore, the management structure as well as evaluation and improvement mechanisms were identified.

Short-term plans of TOA and municipalities for a year are usually based on the Strategy and the Programme. In the framework of this IAP project, these documents were considered as one planning process for territory development.

8.4 Strategy priorities and sustainable development principles

The Strategy was a radically new document in regional development planning in the Russian Federation. Its advantages were highly appreciated at both regional and national levels. The development of the Strategy won Tomsk Oblast the status of "Innovation Implementation Zone". This would attract additional investments to the region and considerably improve Oblast's development opportunities. One of the most important advantages of the Strategy was the underpinning principles which included clear definitions of strategic priorities, focuses, goals and objectives. At the same time the Strategy had weaknesses, including fixation on a limited number of elements, and lack of capacity to adjust. This reduced its flexibility, even though adaptability would be necessary under conditions of limited strategic analysis and changing external conditions.

The approach of seeing the South as a centre of

knowledge and the North as a production site was based on the assessed potential of the most developed areas of Tomsk Oblast, even though this would have deep constraints for the Oblast as a whole. A considerable part of the Oblast territories was ignored in the strategic priorities, not to mention the fact that more than half of the territory's population resided in the ignored regions.

Real life implementation has shown that successful strategies do not burden themselves with predetermined typologies. Instead, typologies are tailored to unique conditions and opportunities of a given territory. Therefore, a strategy combining different development strategies was likely to be the most successful. Moreover, the Strategy should suggest a vision as well as perspectives for large areas of the Oblast currently ignored so that priority industries can be defined.

The Strategy emphasized TOA as its key player. Other authorities, including Federal and Municipal Government, were also main actors. As the Strategy was oriented towards prospective investors and international organizations, apart from the authorities, some of the other stakeholders were regarded as non-active. They were seen as "beneficiaries" (or "passive observers") for whom the Strategy was implemented. At the moment of writing, the Strategy could be called the "Leaders' Strategy".

Re-orientation of developmental priorities from resource industries to innovative technologies and ERC is an important achievement of the Strategy, as it favours sustainable development. However, reduction of state subsidies to agriculture creates some social risks. It is necessary to build compensating measures aimed at those rural areas that lack development opportunities in the framework of the Strategy.

The Strategy's goals and objectives in many cases dovetailed with sustainable development goals. Nevertheless, there was no integration of developmental and environmental goals. The most significant gap was at the level of objectives. Moreover, the Strategy had a tendency to under-determine opportunities. For example, the objective of "green image" creation had significant potential. However, this objective was not harmonized with the goal of high investment attractiveness. Another example would be the lack of attention paid to rural and vulnerable social groups. The most active participants were active social groups, while rural populations, professors and students, and an association of indigenous people were also consulted. However, vulnerable groups were absent, which was contradictory to sustainable development principles which stress wide public participation. Doing so would help transform the "Leader's Strategy" into a "Strategy for Everyone".

8.5 Results

Environmental assessment of economic sectors (oil and gas, nuclear energy, ERC, agriculture and traditional nature use) carried out within the framework of IAP allowed identification of strategic impacts as well as risks associated with the development of these sectors. The TOA should focus its efforts on managing these risks. The assessment also showed under-used opportunities, which should be rectified at the next stages of development planning, and also recommendations for the priority economic sectors:

- **Oil and Gas Sector**

  Usage and gradual depletion of resource deposits

are strategic risks with impact on the environment. For example, transfer of oil and gas resource exploitation rights to small companies that have poor capacity in reclamation measures results in inefficient use of an important natural resource and serious environmental pollution.

Recommendations: Evaluate deposit reclamation costs and consider them in light of new economic forecasts of the industry. Develop mechanisms that ensure obligatory and high quality reclamation, such as financial investments, and institutional and legal support.

- **Nuclear Energy Industry**

  The problem of nuclear waste disposal is a strategic risk associated with development of the nuclear energy industry. At the moment, liquid nuclear wastes are pumped into aquifers in Tomsk Oblast. This method may result in long-term risks that are difficult to control and have irreversible effects. The current system of environmental payments fails to provide due compensation for damages and therefore lacks funds for environmental protection measures.

  Recommendations: Develop a legal basis for regulation and management, in order to:

  - Improve the system of federal payments for liquid nuclear waste disposal, emissions and discharges. These payments should be used for reclamation and protection of the environment.

  - Expand mechanisms to develop insurance and decommissioning funds for financial support under force majeure circumstances.

  - Develop measures aimed at increasing the effectiveness of radiation monitoring in the Oblast and making the results publicly available. This will contribute to environmental protection and a green image.

- **Education and research complex**

  The ERC is a new development priority for sustainable development of the Oblast. A strategic risk is the possibility of not achieving the expected development level through lack of competitiveness. Opportunities currently unexploited in the Oblast include continuous environmental education and training for specialists of various profiles to have the necessary knowledge in the fields of environmental protection and social accountability, which are valued by the modern labour market.

  Recommendations: Continuously monitor the dynamics of competitiveness of the Oblast's ERC on the domestic and international markets, and seize every opportunity to increase competitiveness. Continuous environmental education can be an attractive Tomsk brand, especially at the international level, and should be integrated into specialist training at all levels.

- **Agriculture**

  Reducing the level of state support to the agricultural sector was a deliberate decision by TOA. This gave rise to two opposing trends. On one hand, the contraction of the agricultural sector led to reduced environmental impact. On the other, the decline in jobs in areas lacking other employment opportunities would result in serious social costs and risks. The agricultural sector plays an important social role in many countries, and therefore the decision to reduce state support should be balanced with measures to raise rural employment and income growth. One such promising activity is

supporting traditional trades involving the sale of non-timber forestry products.

Recommendations: Develop a policy for rural development taking into account TOA's strategic focus, local conditions and opportunities. A programme for supporting non-agricultural activities in rural areas should be developed based on this policy.

- **Traditional nature use**

  Traditional nature use was not found in the priorities of the Oblast because of the minor contribution of this sector to the regional economy. However this sector does play a unique role in the micro-economy and an important social function since development opportunities are so few. In fact, traditional nature use has become a survival strategy for the rural population in many Russian regions. Activities include gathering of non-timber forest products such as nuts, berries and mushrooms. They are accessible to residents of remote areas and require little external investment. Obstacles include the lack of reliable business schemes that ensure market access for a producer without numerous intermediaries, and the risk of natural resource depletion resulting from inefficient use.

  Recommendations: Develop a regional policy for supporting traditional trades based on the principles of sustainable nature use, taking into account actual opportunities and needs of the area. This significantly contributes to sustainable development of Tomsk Oblast.

8.6 Conditions for success

The Tomsk Oblast Development Strategy to 2020 could and should become the main document powering sustainable development of the Oblast. In order to fully realize this potential, official adoption of a sustainable development principle should be considered as early as during the Strategy's formation. Through such an approach, the Strategy could secure social and economic development of the area as well as environmental protection. Other policy documents with sustainable development values should also be explicitly linked to the Strategy. To facilitate successful implementation, the following recommendations were proposed:

1. **Sustainable Development Council.** Create a strategic mechanism that will ensure continuous development and "self-learning" of the Strategy. This mechanism can be implemented as a Sustainable Development Council attached to the TOA. The Council, including representatives of all stakeholders and social groups, will plan sustainable development of the area and align strategic processes with sustainable principles.

2. **A strategy for everyone.** The Strategy should concern all residents of the Oblast, and not only TOA or the technology/business elite. Thus the development and implementation processes should be linked to the needs, resources and views of Oblast residents. Currently the process of developing or adjusting municipal development strategies has begun, with some districts and large companies developing their own plan on the basis of the Strategy. These important activities ensure continuity and deserve particular attention and support from TOA.

3. **Strategic conversations.** The Strategy should be linked to global trends and processes related to sustainable development and should not be limited to market liberalization as currently. Valuing these trends can be through strategic analysis, scenario

building and strategic conversations within the Oblast Sustainable Development Council. The results of such analysis should be made widely available to prepare Oblast stakeholders for "strategic eventualities". Global trends and processes include:
Climate change and resulting political and economic activities at the international level
Promotion of new technologies, especially in the energy, information and communication sectors
Dynamics of ERC, considering strategies of key players in the field
Growing role of the Asian-Pacific region
International trends and commitments concerning sustainable development, such as the Millennium Development Goals
Strategies of neighbouring and competing regions, within the country and abroad.

4. **Strategic radar.** Increase flexibility of the Strategy by refining the system of performance criteria and indicators, and by inserting a Strategy "auditing" mechanism, which monitors the validity of initial assumptions in the face of changing external conditions.

8.7 Conclusions

The project team found that the Strategy had been developed according to modern strategic planning principles. It clearly defined the development priorities of Tomsk Oblast, along with goals, objectives, principal implementation mechanisms, performance criteria and indicators. However, the well-defined system lacked flexibility. Furthermore, while review and adjustment mechanisms could aid monitoring of goal achievement and implementation, there were no criteria to ensure adjustment to changing external conditions. Thus, the planning process of the Strategy currently lacks adaptability.

The team also identified a number of inconsistencies with the principles of sustainable development. The most significant ones included:

- Insufficient consideration of stakeholders' interests and opportunities; primary orientation towards vision of leaders and successful social groups; and lack of integration of interests and opportunities of vulnerable groups, including indigenous peoples and people with differing abilities.
- A lack of vision concerning the future of the districts ignored by the current strategic priorities.
- Lack of integration in sustainable development aspects, and opportunities and risks of environmental impact.

A gap was also observed in the lack of formalized linkages between the Strategy and other strategic documents of Tomsk Oblast (such as the Poverty Reduction Strategy). While the Tomsk Oblast Development Strategy benefited from a modern approach towards strategic planning, implementing the recommendations of this IAP project would also make it an effective instrument of sustainable development.

8.8 Abbreviations and acronyms

ERC	Education and research complex
GDP	Gross domestic product
IAP	Integrated assessment and planning
	The Indonesian National Planning Development Agency
PROPENAS	The Indonesian National Development Planning Document
KPK	Komisi Pemberantasan Kemiskinan/
	Committee of Poverty Eradication
NGO	Non-governmental organization
PRSP	Poverty Reduction Strategy Paper
SDPK	A local poverty reduction strategy paper
PPA	Participatory Poverty Assessments

9. Uganda: Integrated assessment of the National Trade and Fisheries Policies

9.1 Introduction

UNEP's initiative on Capacity Building for Integrated Assessment and Planning (IAP) for Sustainable Development supported Uganda's effort to integrate the three aspects of sustainable development (environment, social and economic) into national planning processes. Uganda's IAP project was launched in January 2004. The administrative oversight for the project was handled by the Economic Policy Research Centre (EPRC), the National Environment Management Authority (NEMA) and the National Technical Steering Committee (NTSC). The NTSC was composed of multi-sectoral representatives from the Plan for Modernization of Agriculture (PMA) secretariat, the Ministry of Finance, Planning and Economic Development (MFPED), NEMA, EPRC, the Ministry of Health (MoH), the Ministry of Tourism, Trade and Industry (MTTI), the Ministry of Local Government (MoLG) and the Ministry of Water Lands and Environment (MWLE).

The initial target policy for IAP was the draft National Trade Policy. This policy was selected because it offered the opportunity to implement an integrated assessment from the inception stage to final adoption. However, the team soon realized that the uncompleted draft was insufficiently developed to allow for an assessment. Although matters later improved with the first finished draft, it still lacked any guiding principles, concrete policy statements or specific strategic actions. A simplified version of the IAP was therefore carried out, a summary of which was passed on to the writers of the policy for their consideration. In addition, a commitment was made to assess the final draft of the National Trade Policy at a later stage. Subsequently, after consultations between NTSC and UNEP, the National Fisheries Policy was chosen as the new target policy, a decision concurred by the Department of Fisheries Resources (DFR) of the Ministry of Agriculture and Animal Industry and Fisheries (MAAIF). The National Fisheries Policy, adopted in 2004, proposes a radical re-structuring of the institutional arrangements in fisheries resource management.

The fisheries sector is observed to have several strong links to Uganda's Poverty Eradication Action Plan (PEAP). The fisheries sector, for example, grew 3.4 per cent in 2003-2004, to contribute 2 per cent of Uganda's GDP (a figure widely believed to be under-reported by as much as six times). With 300,000 people directly employed in fishing, fish processing and fish trading, the fisheries subsector is also the main source of household livelihood for

more than 1.2 million people. Finally, the fisheries sector is characterized by bribery, illegal fish exports and outlawed fishing gear.

With the National Fisheries Policy, new resource co-management structures, such as beach management units (BMUs) and lake management organizations (LMOs), were formed to allow community sharing of fisheries management. The principal target audience for this report includes DFR, NEMA, MFPED, MoH, the Ministry of Gender, Labour and Social Development (MoGLSD), and district governments. In addition, there were other policymakers, legislators, heads of government departments, representatives of the private sector, civil society, academics, research institutions, development partners, and the general public found this report of interest.

9.2 Overview of the Trade and Fisheries Policies

Uganda's trade policy was designed to contribute to the nation's Poverty Eradication Action Plan (PEAP) by promoting employment, economic growth and export diversification. The emphasis was on interventions in processing of primary export products, creating uniform product standards, establishing a strong position to counter non-tariff barriers, reducing tariffs on commonly used import items and developing a competition policy.

The National Fisheries Policy, on the other hand, was developed in response to fears that the lack of a coherent policy inhibited investments in Uganda's fish industry. The policy also sought to establish common ground between the fisheries central authority, DFR, and district local governments, since management of fisheries was undergoing a decentralization process. In addition, there were concerns about equity for women and the poor, the sustainability of the fisheries, and absence of fisheries management institutions and finances. Further issues were poor information management, growing demand for aquaculture, investment regulation, fish quality and value addition.

9.3 Assessment process

Assessment was carried out using the scenario building approach (SBA). Scenarios describe events and trends as they can possibly evolve, and are constructed to highlight future probable causal processes and decision points. Three scenarios were laid out and named the same way as those used in Uganda's long-term planning framework, "Vision 2025": the *slumber fish* scenario, the *ostrich fish* scenario and the *flying fish* scenario.

The *slumber fish* scenario describes fisheries management before the adoption of the National Fisheries Policy. It builds a case for failure to kick start the new policy due to two failures: inability to mobilize sufficient resources; and simultaneous failure to learn, in the absence of capacity, how to implement new policy. In this scenario, the fisheries are managed under the existing Fish Act (1964), the Blueprint for Fisheries Management (1982), and additional policy documents developed by DFR.

The *ostrich fish* scenario is based on the premise that the Fisheries Policy has been successfully implemented and unfolds according to the sustainability indicators, trade-offs and win-win situations articulated in the policy's strategic objectives.

The *flying fish* scenario moves on to describe an even more developed Fisheries Policy, enhanced by new knowledge and experience gained from

around the world, which therefore suggests a new level in fisheries resource management. All three scenarios are projected to run from 2006 to 2017.

9.4. Results

9.4.1 Market analysis

Fish production under the *slumber fish* scenario has a maximum sustainable yield (MSY) of 330,000 metric tonnes (mt) per year in captured fish, with only 2,036 metric tonnes (mt) known to be harvested from aquaculture.[1] Actual recorded fish production however was only 220,000 mt, with as much as 60,000 mt more smuggled from Uganda as illegal exports. Total known production was therefore only 282,036 mt. Under the *slumber fish* scenario, aquaculture is expected to stagnate. There will be no deliberate government policy to increase or encourage farmed fish production, although the demand shortfall may be as high as 167,164 mt by 2017. In fact, given growing demand yet continued inefficient production, fishers are likely to employ capture techniques that perversely lead to depletion of fish stocks and declining catches. In the long run, the price of fish will be very high for domestic consumers and even processors and exporters, since demand will be much higher than supply.

The *ostrich scenario*, developed from the 2004 National Fisheries Policy, projects that demand for fish will be 320,000 mt per year after 2015, assuming long-term fish consumption maintained at 10 kg per capita. Current projections indicate that the population will grow to 36.21 million people in 2015 and 38.92 million in 2017.[2]

When the maximum allowable export per year of 60,000 mt per year is factored in, total fish demand, domestic and export-wise, will reach 380,000 mt per year. Given MSY of the capture fisheries at 330,000 mt per year, the country is faced with an annual shortfall of 50,000 mt. Realistically, under this scenario, aquaculture production can be doubled for 2004 and 2005, but it is only expected to grow at 6 to 8 per cent annually from 2006-2017[3], reaching 36,871.5 mt to 46,715 mt by 2017. At the same time, production of crop-based proteins is expected to rise as producers look to meet some of this demand. A recent study by the National Planning Authority (NPA) and DFR revised Uganda's total fish production to 430,000 mt, up from 330,000 mt, with MSY of capture fisheries at 416,000 mt and annual aquaculture yield at 14,000 mt.

In the *flying fish* scenario, Uganda will aim to increase fish consumption to at least 15.6 kg per capita, in line with international recommendations.[4] Given a population of 38.92 million by 2017, based on the current population growth rate of 3.4 per cent, total domestic fish demand will come in at 607,152 mt per year. The new Uganda Fisheries Authority (UFA) can then increase the export quota for fish to about 90,000 mt per year, since as their efficiency at enforcement increases, it will be able to stop illegal exports and legitimize the 60,000 mt of illegally exported fish as official exports. Total fish exports will therefore reach 90,000 mt, given the current volume at 30,000 mt, and therefore the total fish demand would be 697, 152 mt a year. This will be met by rapid growth of aquaculture, expected to produce 46,715 mt per year by 2017

1. Banks, 2003.
2. UBOS, 2005.
3. Delgado *et al.,* 2003 and FAO, 2004.
4. FAO, 2004.

under this scenario, and also by a new high MSY of 500,000 mt per year achieved through proper stock enhancement, restocking, rehabilitation and adequate management of the fisheries.[5] The total domestic supply of 456,715 mt (total production of 546, 715 mt less 90,000 mt of exports) will ensure an increase in per capita fish consumption to 11.7 kg.

9.4.2 Environmental impacts

Under the *ostrich fish* scenario, around 25 per cent of the fish harvest are by-catch and discards, a sign of poor fishing practices and over-fishing in Uganda's fisheries.[6] Poor fishing practices include the use of illegal or under-sized fishing nets, which trap immature and non-target fish, and use of blasting and poison. Pollution from chemicals, eutrophication and water hyacinth proliferation also causes deterioration of water quality.

The promotion of aquaculture (under the *flying fish* scenario) is likely to lead to: increased movement of aquatic animals and plants; increased incidence of diseases; pollution problems from ponds and pens; concern over growing pressure on wild pelagic stocks which are made into fish oil and fish meal for carnivorous and omnivorous farmed fish; and armed fish escaping into the wild to threaten native species as predators, compete for food, habitat and breeding sites, and enter the genetic pool.

The major environmental problems that characterize the *slumber fish* scenario are: unsustainable exploitation of fisheries, including over-exploitation and destructive fishing practices; and the pollution problem, which breaks down into microbial, eutrophication and chemical pollution. The level of capital investment is expected to remain steady, with motorized fishers at 20 per cent and the majority being traditional and artisanal fishers. In 2004, fish exports to the European markets were approximately 28,000 mt with total production at 282,036 mt. With a growing population and higher demand for Uganda's fish exports, fishers are likely to proliferate illegal fishing practices. Some reports indicated that already as many as 50 per cent of the nets used on Uganda's Lake Victoria were illegal.[7]

In the *ostrich fish* scenario, total fish production will range between 366,871.5 mt to 376,658 mt per year by 2017. The export demand for fish was envisaged to remain constant at approximately 90,000 mt. To increase domestic fish consumption to 10 kg per capita, fish production will have to increase to at least 479,200 metric tonnes. If the target of 10 kg per capita is pursued to the letter, fishers will have to supply more fish from the capture fisheries. The pressure to support members of the community and satisfy growing demand may encourage the communities to exploit fish stocks beyond sustainable levels. While the BMUs may aid sustainable management, they are unlikely to control over-fishing given the excess demand for fish. Restricting fisher numbers will also prove problematic.

Pollution will decline in the *ostrich fish* scenario, but illegal discharge of effluents may continue. The greater danger here lies in the chemical pollutants with high concentrations of toxic elements, such as mercury, cadmium and lead, all non- biodegradable substances. It is commonly believed that effluent from factories in the Lake Victoria basin (especially from factories in Uganda and Tanzania) are not

[5] Nyeko, 2005.
[6] Delgado *et al.,* 2003.2. UBOS, 2005.
[7] Odada *et al.,* 2004.4.

adequately treated. Although the National Fisheries Policy empowers the DFR to institute measures against activities that threaten fisheries resources, the absence of a firm joint position by countries can be exploited by polluters. In the medium term, the potential for high concentrations of polluting chemicals to threaten the minimum residue level (MRL) acceptable for Ugandan fish will lead to quantity restrictions in international and domestic markets. The Government of Uganda may have to allocate funds for clean up. Regulations, fines and threats to prosecute in the *ostrich fish* scenario may not be enough to prevent on-going pollution.

Currently a number of factories/industries, flower farms and other potential polluters are located in the catchment area of Uganda's waters. The DFR is monitoring the levels of pesticide residues and trace elements in the water, and noting sediment and fish levels. While some compliance was seen, more measures to strengthen monitoring, especially at a number of effluent discharge points, were needed.

From work done by studies that identified effective fisheries management, UNEP, NEMA, EPRC and DFR agreed to implement a pollution tax on industries polluting the Ugandan Lakes. The aim was to eliminate or reduce the risk of fish contamination and safeguard fish quality and safety for export. Imposing pollution charges however require collaboration by the whole region, in the form of discussions, communication and later harmonization.

In the *ostrich fish* scenario, growth of aquaculture production will be from 2,036 mt per year to potentially 36,871.5 mt or 46,658 mt by the scenario year. As aquaculture grows there is a need to face up to potential environmental problems such as abandonment of ponds, land degradation, deforestation, and pollution of wetlands, rivers and lakes. In the *ostrich fish* scenario, the aquaculture projects will be monitored using EIA and MCS. However, the reliance on standards and the absence of charges run the risk of the fisheries regulators getting left with a huge cleanup cost in case of an environmental disaster.

In the *flying fish* scenario, the UFA will be in charge of all fisheries, as well as dams, rivers, and channels. Stock enhancement and restocking will be carried out for depleted fisheries to ensure that all fisheries are utilized. Water bodies and systems that formerly were part of the national fishery resources will be rehabilitated if passed by a cost benefit analysis, and some wetlands that are not deemed endangered will be used as additional habitats for the fisheries. It is estimated that the MSY could increase from the 2004 estimates of 330,000 mt to over 500,000 mt.[8] Since the fisheries are expected to be fully utilized, however, there is a danger of creating a trade-off between biodiversity and other components of the ecosystem, which affect fisheries' resilience and increased productivity. In theory the ecosystem approach should be able to achieve resilience by ensuring sustainability for the ecosystem as a whole. However, in practice, stock enhancement, restocking, habitat growth and rehabilitation of habitats, if poorly done, can endanger the very ecosystem they intend to make more efficient.

Therefore the question here is whether the trade-

[8] Nyeko, 2005.

off will guarantee sustainability of the ecosystem. In addition to standards, the full implementation of economic incentives and disincentives will be used to ensure that there is full compliance by polluters and that offenders pay for the restoration of the ecosystem. As mentioned under the *ostrich fish* scenario, the threats from aquaculture are real while enforcement is limited to aquaculture guidelines and EIA. The *flying fish* scenario however extends enforcement to include economic instruments and resource rents, ecosystem service schemes, and organic and sustainable fish farming and eco-tourism ventures, especially where the biodiversity of birds, fish and other flora and fauna may offer greater benefit to the fishing communities than mere commercial fisheries.

9.4.3 Social equity and poverty

In the slumber fish scenario the poor (who include most of the women) will continue to have limited access to the fishery. Women will continue to depend on their fisher husbands (or relatives) to sustain their livelihoods. By being unable to own motorized boats, the poor will continue to harvest less. Children and women of childbearing age bear the brunt of the reduced nutrition as less and less fish food is available.

In the short run, the 80 per cent of the fisher population who rely on artisanal fishing practices will be most affected. As fish stocks are depleted, more effort will be required to catch fish. The tender system will move to protect those who can pay the landing site fees, further punishing the poor fishers. In the long run all fishers will be surviving on a depleting resource and even the fishers with motorized boats will have to go out more frequently and harvest over a wider area. Eventually, they too will find it too expensive to fish.

In the *ostrich fish* scenario, at least 30 per cent of fishery access will go to women, and the resource will be managed by BMUs, ensuring equity for all. The motorized boat owners will still do better than the artisanal canoe fishers, but the gap will be much diminished. In fact the rich fishers' tendency to monopolize the fishery and landing sites by hiring labour will be cut down by a democratic arrangement of fishing rights. As fish stocks recover, there will be more fish caught. However, the greater opportunity will be in aquaculture. For the fish processors, exporters, employees and indeed NGOs and government staff, success depends on having a sustainable, or perhaps growing, stream of harvested fish coming from both capture fisheries and aquaculture.

The increased fish supply envisaged in the *flying fish* scenario is expected to increase per capita fish consumption from an estimated 7.7 kg to about 11.6 kg. Women of childbearing age and children stand to gain most from the increase in fish nutrients (fatty acids, proteins and minerals) which reduce child mortality, improve neural development of the fetus and lower the risk of low birth weight. Furthermore, improved access and incomes from the fishery will give women more power within the community because they will have money to send their children to school and provide health care for themselves and their children.

Since fishing communities in sub-Saharan Africa and Uganda are among the most affected by HIV/AIDS[9], fish can provide affordable proteins and micro-

[9] MAAIF, 2004.

nutrients to mitigate the effects as proper nutrition is essential for the effective use of drugs. More income also enables the infected to obtain further medical services. Fishers are five times more likely to die of AIDS-related illnesses than farmers in the Lake Victoria region.[10]

With an expanding fishery industry under the *ostrich fish* and *flying fish* scenarios, there will be growing opportunities for employment in fish processing, aquaculture production and other industries that serve fisheries such as net making, marketing, advertising and branding of fish and fish products, advocacy on environmental dangers, and business development. Adherence to sanitary and phytosanitary standards not only benefits the final consumer, but helps prevent malaria, cholera, and dysentery. The health of communities will improve and they will be less likely to spend a large proportion of their income on health care. Such a system provides adequate traceability that can be screened for compliance with Ugandan fish requirements.

Failure to implement the National Fisheries Policy in the *slumber fish* scenario will jeopardize the livelihoods of 1.2 million people, increasing to 1.8 million by 2017, who rely on the fisheries sector for their livelihood. Three hundred thousand are fishers and 90,000 are employed in the fisheries sector at government, private or civil society levels, with another 810,000 people living in fishing communities or employed as net makers, boat manufacturers and fishmongers. The 17 million regular fish consumers in Uganda in 2004 will have grown to approximately 26.4 million people by 2017. This will mean that in the *slumber fish* scenario, per capita fish consumption will fall to 5 kg. The rich fishers may have benefited from market failures, such as bribery in tender allocations in the short-term, but when fish stocks collapse they too will lose their revenue. Fish processors and exporters will lose the value of their investment in the fisheries industry, a sum not less than US$2 million per initial investment.

In the *ostrich fish* scenario, the loss due to poor administration of the fisheries will be avoided through better MCS, an improved administrative structure, resource rents, BMUs and gender equity. However, as resource regulators plan for a more sustainable fishery, some fishers will lose out. The old groups of private tender holders, the rich fishers, who dominated the fishery will have to adjust to a co-management structure. Commentators believe that ultimately the strong will still dominate only this time they will do it in co-operation and with legitimacy from the new Fisheries Act. Therefore the successes of the new structure will depend on evaluating the livelihoods of the poor.

While the National Fisheries Policy's aim is to increase aquaculture production to 100,000 mt per year over the next 10 years, only 47,000 mt per year can be realistically expected. Fish consumption is likely to improve to between 7.7 kg and 10 kg per capita. However the target of 10 kg per capita will not be attained. Under an enhanced policy, however, as in the *flying fish* scenario, per capita consumption can increase to 11.6 kg per year if the enhanced target of 500,000 mt per year is attained. This will require a much more vigorous programme of stock enhancement, restocking, and habitat rehabilitation. Besides expansion of capture fisheries, fishers are rewarded for sustainable fishing and not the size of their catch. There are opportunities in organic

[10] FAO, 2004.

fisheries given a market that is rapidly expanding worldwide as well. The greatest effort however will be to establish sustainable fisheries through the BMU initiative and reduce over-fishing, pollution and destructive fishing practices. But the question is - will it go far enough?

IAP contended that the measures in the new Fisheries Policy would not go far enough to ensure sustainability. Most of the instruments needed were mentioned in the Policy but only the tools used will determine sustainability. As fisheries resource managers had discovered, it was not enough to create regulations for pollutants, especially for industries that release dangerous chemicals, because as long as the opportunity cost of installing new equipment was high, they would continue to pollute. Rent-seeking behaviour, which assumes that the lakes and rivers will neutralize polluting substances or get cleaned up by the government, needs to be changed, such as through pollution charges. A similar situation exists for fishers who catch immature fish and smuggle the fish across the border into neighbouring countries. Despite fines, the activity goes on and there is a need to put in place real economic penalties. As the National Fisheries Policy rightly pointed out, there is a need for the number of fishers to be reduced to ensure a sustainable fishery. Re-tooling, micro-finance and business skills training can help ease the displacement.

Aquaculture has existed for a long time and yet even by international standards the dangers of intensification of aquaculture are not fully known. Cage farming on Uganda's major fishery, Lake Victoria, was about to begin at the time of assessment and the potential pollution or disease problems had to be considered. There was an urgent need to develop guidelines for intensive commercial aquaculture. Aside from aquaculture, fully exploiting the capture fisheries could create problems testing the resilience of natural systems. A comprehensive environmental cost-benefit analysis is needed to ensure that the trade-off is worthwhile.

9.5 Recommendations

9.5.1 Recommendations for the draft National Trade Policy

1. The Trade Policy needs to address:
   a. How will additional production so far proposed be realized?
   b. What are the likely environmental and social concerns?
   c. What contingency measures are planned to mitigate negative impacts and enhance the positive?

2. The Trade policy also needs to address the concerns of stakeholders who promote environmental and sustainable goods and services.

3. A comprehensive integrated assessment of the National Trade Policy should be carried out at a later date to assess sustainable development in the context of environment, social and economic issues.

9.5.2 Recommendations for the National Fisheries Policy

1. Strengthen capacities of the various levels of government.

2. Spend revenues wisely in consultation with the fishing communities and use the revenues on community projects that lead to human development especially in health and primary education.

3. Apply economic instruments to both generate the resources needed for fisheries management and provide the incentives to conduct fishing activities in a responsible manner.

4. Revisit and complete the design of an effluent charge mechanism for Uganda's fisheries and other natural water systems.

5. Ensure benefits to the poor, by focusing on improving access to health care, especially maternal health care, education and safe drinking water.

6. Address the concerns of the losers, such as the poor fishers who may be disadvantaged by the Fisheries Policy, and the richer fishers who surrender their fishing rights to the communities in a programme for sustainable development.

7. Engage the private sector.

8. Strengthen environmental laws and regulations and promulgate a new principal law for effective fisheries management and better institutional structures.

9. Develop effective law enforcement mechanisms.

10. Develop guidelines for Environmental Impact Assessment for aquaculture in anticipation of rapid growth of cage farming on the water bodies, such as Lake Victoria.

11. Improve stakeholder participation and inter-ministerial coordination to guide sound decision making at the national level through stakeholder participation and inter-ministerial cooperation.

9.6 Conclusions

The IAP process had succeeded in bringing together stakeholders from a range of government ministries, agencies, NGOs, business associations, research institutes, development partners such as the European Union, the African Development Bank (AfDB), USAID and private consultants, to understand the process of integrating environmental and social issues into economic and trade policies. Another main contribution of this study had been data identification and generation of an assessment process for both the National Trade Policy and National Fisheries Policy. Although no changes to these policies were expected immediately, it was hoped that the recommendations would be easily implemented.

9.7 Abbreviations and acronyms

AfDB	African Development Bank
BMU	Beach management unit
DFR	Department of Fisheries Resources
EIA	Environmental Impact Assessment
EPRC	Economic Policy Research Centre
GDP	Gross domestic product
LMO	Lake management organization
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MCS	Monitoring control and surveillance
MFPED	Ministry of Finance Planning and Economic Development
MoGLSD	Ministry of Gender Labour and Social Development
MoH	Ministry of Health
MoLG	Ministry of Local Government
MRL	Minimum residue level
MSY	Maximum sustainable yield
MTTI	Ministry of Tourism, Trade and Industry
MWLE	Ministry of Water, Lands and Environment
NEMA	National Environment Management Authority
NGO	Non-governmental organization
NTSC	National Technical Steering Committee
PEAP	Poverty Eradication Action Plan
PMA	Plan for Modernization of Agriculture
SBA	Scenario building approach
UBOS	Uganda Bureau of Statistics
UFA	Uganda Fisheries Authority
UNEP	United Nations Environment Programme
IITC	Inter-Institutional Trade Committee
NPA	National Planning Authority

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